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TOP SECRET

UNKNOWN WEAPON

VYACHESLAV KOZYREV MIKHAIL KOZYREV

MAN-MADE

PASS

Moscow "YAUZA" "EKSMO" 2005

BBC

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Design by artist P. Volkov

Kozyrev V., Kozyrev M. Man-made UFOs. - M .: Eksmo, Yauza, 2005. - 320 p., ill.

15VM 5-699-08237-9

The book "Man-Made UFOs" describes unusual aircraft designs that an inexperienced observer might mistake for UFOs. Among them are disc-like vehicles, “tailless” and “flying wings”, aerospace vehicles, convertiplanes, high-altitude “lighter than air” vehicles, unmanned vehicles, “flying platforms” and much, much more. Brief information is given from the history of the appearance of the first reports of UFOs, unique developments of unusual aircraft in Germany during the Second World War are given. And what is especially interesting: on the basis of previously classified materials from foreign and Soviet archives, the book details, with photographs and drawings, the work of designers and engineers on unusual aircraft in the post-war period in the USA, Canada, France and the USSR.

BBC 39.53

7. HOW UFOLOGY STARTED

The first documented reports of encounters with unknown aircraft in the form of a disk, plate or cigar appeared in the middle of World War II.

On March 25, 1942, the crew commander of an English bomber reported in his post-flight report that his aircraft had been attacked over German territory by an unknown

an aircraft, around which a yellow-red glow was observed. Aimed fire from the bomber's small arms on the attacking vehicle did not give any results, but after a while the unknown vehicle went up and disappeared from the field of view.

In October 1943, during one of the massive allied air raids on targets located in Germany, the bomber formation was attacked by a group of large shiny disks rising from below.

On November 27, 1944, the crew of an American bomber returning from night bombing in the western regions of Germany reported by radio about a glowing orange object moving at a speed of about 800 km/h. However, contrary to the statements of the crew, the operators of ground tracking stations did not detect the object on the radar screens.

At the end of the same year, a P-61 aircraft from the 415th Night Fighter Squadron of the 9th Air Force of the US Air Force patrolled the sky over the Rhine. After the shooter reported on the luminous objects that appeared, the pilot turned the aircraft towards the flying objects with the intention of attacking them. Since the airborne radar operator was unable to detect targets on his screen, the crew commander requested by radio

ground station tracking the coordinates of the target. However, ground operators also failed to detect objects. The pilot pursued targets flying in a northeasterly direction, observing them visually until they disappeared into the darkness.

In December 1944, the commander of a B-17 bomber returning from a mission to the base reported to the command post that they had encountered an object that looked like a “small amber disk” and was following the bomber from Klagenfurt (Austria) to Adria. the tic sea. In a post-flight report, he wrote: "The intelligence officer who interviewed us stated that it was a new German fighter, but could not explain why he did not shoot at us."

The largest number of encounters with luminous objects was recorded during night flights, but there was evidence of their appearance during the day as well. A B-17 bomber pilot during a daytime raid saw an object that looked, in his words, "like a basketball." Approaching the formation of bombers at a distance of less than 100 m, the object moved nearby for some time, as if magnetized, and then left.

The pilot of a P-47 fighter flying a daylight flight west of Neustadt also reported sighting a globular golden-colored object with a protruding metal part. Another pilot saw in the same area a phosphorescent sphere of golden color, according to his definition, from 3 to 5 feet (from 1 to 1.5 m).

American pilots from the 415th Night Fighter Squadron called the unknown objects “foo-fighters” (“Eoo-Ergyegs”) among themselves. For the first time such a term was used by Lieutenant Donald Meyers, a native of the city of Chicago. The name comes from the Smokey Stover comic strip created by cartoonist Bill Holman and first published in

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one of the Chicago newspapers in 1935. The hero of the comics was a goofy firefighter who drove a "fumobile" - a two-wheeled car with the number "POO-E-2-0)". Perhaps all the fruitless attempts to intercept unknown targets caused the young pilot to associate with the stupid activities of Smokey Stover.

In 15 post-flight reports by the pilots of the 415th Squadron, Donald Meyers Leah, the appearance of mysterious interceptors was noted. Most of the objects were observed in the triangle between Frankfurt am Main in the north, Metz in the west, and Strasbourg in the south. Here are excerpts from two reports:

“December 22/23, 1944 - task 1, 17.05-18.05. At 17.50 he made contact with an object at a distance of 4 miles. Flew and couldn't make contact again. The object left, and the weather deteriorated so much that we had to return to the base. I saw two fires,

“February 13/14, 1945 - task 2, 18.00-20.00. Around 19:10 between Rashtatt and Bishwiler unexpectedly encountered lights at 3,000 feet (914 m), turned towards them, one went down, the other went straight up, and then disappeared. Returning to the base, I looked back and again saw the lights at the starting position.

Reports of luminous flying objects noted the unpredictability of their behavior: an object could pass through the combat formation of bombers at high speed.

pilots, not reacting to machine gun fire, but could simply suddenly go out during the flight, dissolving into the night sky. In addition, cases of failures and failures in the operation of navigation and radio equipment of bombers were recorded when unknown aircraft appeared.

Documents with reports of the appearances of "foo fighters", stored in the US National Archives in College Park, Maryland, became available to researchers only in 1992. However, the most intriguing thing was that most of the reports were made by pilots of the 415th night fighter squadron.

After the war, it became known from captured German documents that the mysterious flying objects were also observed during the war by German pilots. So, for example, in the area of a secret German base in Norway, a German pilot, who took off on alarm, tried to intercept a horizontally flying cigar-shaped apparatus, which instead of a wing had some kind of device resembling antennas sticking out in different directions. The interception attempt ended in failure, because. unknown device quickly went into a vertical climb and disappeared. Another flying cigar-shaped apparatus was unsuccessfully fired upon during the war in the Baltic Sea by a German submarine.

From the declassified American military archives, it became known that unidentified objects appeared during the war and over the territory of the United States. On August 29, 1942, two round reddish objects flew over the air base in Columbus (Mississippi). And even earlier, on February 25 of the same year, unidentified objects were observed in the sky over Los Angeles, flying very slowly. The very next day, a memorandum was presented to the President of the United States, which reported “... about the air alert over Los Angeles, announced yesterday morning. According to the data currently available:

1. Unidentified aircraft not belonging to the US Army or Navy appeared over Los Angeles and were fired upon by units of the 37th Anti-Aircraft Brigade between 0300 and 1900. 12 min. and 4 hour.

15 minutes. The units fired 1430 shells.

2. This incident involved about 15 aircraft,

flying, according to official figures, on various

speeds from "very slow" to 360 km / h at high

max from 9,000 to 18,000 feet (2,700 to 5,500 m).

3. Not a single bomb was dropped.

4. There are no losses among our troops.

5. None of the aircraft was shot down.

6. None of the aircraft of the army or navy in the air

rose. The investigation is ongoing.

It seems fair to conclude that the unidentified aircraft, if they were, belonged to the merchant air fleet and that they were used by the enemy in order to sow anxiety, as well as to reveal the location of air defense units as a result of their unmasking. This conclusion is confirmed by the different flight speeds of the vehicles and the absence of dropped bombs.

As can be seen from the text of the memorandum, at that time all unidentified objects were clearly perceived as a new secret weapon of the Germans or Japanese. Therefore, the Allied command ordered the intelligence services to conduct a thorough investigation and find out if the unknown devices were not the same "miracle weapon" that Goebbels' propaganda was talking about. One of the first results of the work of British and American intelligence was the appearance of the now widely known abbreviation OEO (“ipÿyepiyea Pup obes” or “ipkpo \ i Putr obes”) - “unidentified (or unknown) flying object” (UFO). As a result, the investigation ended with the immediate creation in the United States and Great Britain of special research groups engaged in the study of UFOs, and all information in any way related to these issues was classified.

However, information about unidentified objects began to seep into the press. For example, on December 14, 1944, the New York Times published an article referring to the Supreme Headquarters of the Joint Forces. It talked about the appearance on the western front of a new top-secret weapon of the Germans - mysterious flying balls, which some pilots of the US Air Force encountered in the air. The spheres flew singly or in groups, sometimes appearing translucent. Another newspaper suggested that the secret German weapon was an air defense weapon. It was reported that there is no information regarding the way objects move in the air and what their purpose is. It was also suggested that the observed balls were controlled at a distance and were engaged in collecting information.

With the end of the war, UFOs disappeared, and therefore information about them ceased to appear on the pages of newspapers and magazines. The public, which believed that Nazism had been defeated along with its top-secret weapons, remained completely calm. However, in 1947, they started talking about UFOs again.

A broad discussion and study of the UFO problem began on June 25, 1947, when reports appeared in some American newspapers under the heading “Flying Saucers!” about the observation of unknown objects by entrepreneur Kenneth Arnold. K. Arnold

the day before I was flying in a small plane near Mount Rainier (Washington) and at about three o'clock in the afternoon I saw nine shiny objects flying at high speed in the air. Objects flew in two parallel lines: five objects in the first and four in the second. Later, it was reported in the press that the geologist Fred Johnson, who spent the whole day in the Cascade Mountains (Oregon), spoke about five or six disks with a diameter of about 9 m each that he saw in the air. Following the report on the observation of disks by Kenneth Arnold in

The testimonies of pilots, radar operators and other qualified observers about the mysterious objects in the air that they noted began to appear. K. Arnold himself, after some time, stated that the journalists misinterpreted his words, and in fact he only said that the objects were flying, like a “plate jumping on the water”. For specialists from aviation and technical intelligence, he generally described the UFO, first in the form of a shovel, and then in the form of “flying wings”.

However, newspaper publications did their job - Kenneth Arnold's report set off a chain reaction of reports of sightings of disk-like aerial objects in America that threatened to overshadow all other news on the front pages of American newspapers by the end of the first week of July. By July 7, there were reports that several discs had crashed in Louisiana, California, Wisconsin, Iowa, and Ohio. Publications of 06 of these crashes appeared in The New York Times, The Daily Record, The London Times, and others. erroneous definition

Kenneth Arnold Original drawing by C. Arnold

leniya. However, on the afternoon of July 8, a public relations officer from Roswell Air Force Base, New Mexico, which at the time was the only air base in the world to have a nuclear weapons carrier unit, issued a stunning press release. The report said that the air base contained parts of a flying disk that had crashed a few days earlier in the vicinity of the remote ranch of farmer M. Brazel. The journalists who sought out the farmer managed to find out that he accidentally discovered the wreckage of the apparatus, among which were pieces of a strange kind of material or film. For several days he kept the wreckage found on his ranch, but then turned to the local sheriff. The sheriff immediately reported to the authorities, after which representatives of the Air Force arrived and took away all the wreckage. Speculation began to be made that part of the apparatus had fallen near Brazel's ranch, and that the apparatus itself had fallen 150 miles to the west.

Adding fuel to the fire was a sensational article published in the Los Angeles Examiner under the heading “Red Atomic Disk”, which spoke about the Soviet “flying saucer” with an atomic engine. According to the story presented in the article, a certain nuclear physicist working in Los Angeles received a mysterious letter containing a description of a Soviet “flying saucer”. This letter was allegedly received from one of the crew members of a Soviet oil tanker that entered the Los Angeles harbor for repairs. The letter stated that the aircraft was shaped like a flat seed with a highly polished skin,

the thickness of the aircraft did not exceed half a meter. The pilot was placed lying down in the cockpit, which was forcibly cooled to prevent overheating during high-speed flight. The lifting force of the apparatus was created on the basis of a new principle, discovered approximately 10 years ago by a mysterious Soviet chemist. Energy is required only to take off the apparatus, but during

during the flight of the apparatus, additional energy is not required, because the aircraft uses the gravitational lines of the Earth. The letter, as follows from the article, was handed over to the FBI.

This is where the American public became concerned, so much so that the official authorities had to react. According to the directive of the US President dated July 9, 1947, a group of Air Force experts conducted an examination of the "Roswell" wreckage. This group included German rocket scientists led by 3. Steinhoff and W. von Braun, who worked at the Fort Bliss air base and the White Sands test site. The expert opinion, which had the highest secrecy stamp, stated that the devices found were not manufactured in the United States and could not be identified as secret German weapons such as the V-1 cruise missile or the V-2 ballistic missile.

Local offices of the FBI, as well as technical intelligence of the US Air Force and Navy, joined the investigation of reports of disk crashes. A declassified FBI document titled “Flying Discs,” dated August 19, 1947, states: “Mr. The colonel [crossed out] stated that he had already discussed it with General Chamberlain. Colonel [crossed out] told Mr. [crossed out] that he had received assurances from General Chamberlain and General Todd that the Army was not experimenting with anything that could in any way be taken. for the flying disc. Soon, the US Air Force officially assured FBI Director Edgar Hoover that there was no secret project to create American "saucers". In a letter dated September 5, Army Air Command Brigadier General George Shalgen stated: “In response to a verbal request from your officer, Mr. S.W. Reynolds, we inform you that a complete acquaintance with the research

Air Force activity has shown that we do not have any project, the work on which would cause phenomena similar to those associated with flying discs. At a meeting of "representatives of the intelligence services in the zone of the 4th Army" it was emphasized: "The country is not aware of the conduct of scientific experiments that could cause such phenomena."

In September 1947, against the background of an ever-increasing flow of reports of unusual aerial objects, the US government instructed the army command to take control of the situation. Official UFO research began on September 23, 1947, when Lieutenant General Nathan Twining, Chief of Staff of the US Army, sent a letter to D. Shalgen. The letter, in particular, said:

"1. At the request of AC/A$-2, we report the point of view of management on the issue of the So-called "flying discs" ... This point of view was formed during a meeting of representatives of the Aviation Institute of Technology, the T-2 intelligence department, the head of the department of mechanics and representatives of laboratories for the study of aircraft, engines and propellers of the T-3 department.

2. The following opinion has been formed:

a) reported phenomena are real and not the fruit of hallucinations;

6) there are objects that have approximately the shape of a disk and the dimensions of aircraft manufactured by people;

c) it can be assumed that some of the observed cases are caused by natural phenomena, in particular meteors;

D) the noted characteristics - very fast takeoff, maneuverability, disappearance when observers appear, when aircraft try to approach, or when spotted by radar - allow us to think that

some of the objects are controlled manually, automatically or remotely;

e) the following characteristics are most often observed:

— the surface is metallic or made of a material with high reflective properties;

— absence of a trace, with the exception of rare moments, probably coinciding with superpower maneuvers;

- the shape is round or elliptical, the bottom is flat, the top is in the form of a dome;

- mostly no sound, in three cases a dull roar was heard;

- several reports of flights in geometric formations, including from three to nine objects.

3. It is recommended that Air Force Headquarters give orders for priority, for classifying the subject, and for code name...

4. Pending a special directive, the Department of Logistics (AMS) will have to continue the investigation on its own."

It should be said that the AMS was the very organization responsible for collecting and analyzing data on the activities of German and Japanese aviation during the Second World War.

On December 30, 1947, the AMS received a directive from the Chief of Staff of the Air Force on the start of actions to collect, compare, evaluate and distribute information among interested organizations regarding UFOs. The Air Intelligence Unit of the AMS issued Technical Instruction No. 2185 dated February 11, 1948, opening a secret project codenamed "Znak". As part of this project, a top secret report was released in December under the number 100-203-79.

The report suggested that the UFO could

whether they were unconventional aircraft developed in the USSR that flew over the territory of the United States. Various reasons for such flights were considered:

"It is possible that the Soviets used flying objects for photographic reconnaissance or mapping of some areas in the USA. Evasion tactics used by all

objects, indicates not so much an attempt to avoid detection as an attempt to prevent disclosure of the exact type of aircraft and its mission. The appearances of objects were most intense in the eastern and western states of the country...

In general, there were no objects in those areas that we consider as strategic industrial zones. The reason for this could be that flying objects only learned the route to strategic areas, or that the Soviets got enough information while maintaining relations with the US during World War II...

It is possible that the flights of Soviet targets over the USA are intended only to assess the ability of the American air defense to identify and intercept foreign aircraft...

Acquaintance with the territory of the USA. This reason is perhaps the most improbable. If the USSR has an unusual aircraft with high performance characteristics, then it could be used for self-acquaintance with the US topography in anticipation of future military operations against strategic targets."

Appendix C of the report described several

UFO sightings:

"A). During April 1947, two employees of the weather station in Richmond, Virginia, reported three sightings of a strange metal disk. On one occasion it was flying at an altitude of about 15,000 feet and the disk was in sight for 15 seconds. The disc looked like a metallic ellipse with a flat bottom and a round top... The disc seemed to be moving quite fast, although it was impossible to estimate its speed. Other observations were made on similar flights at 27,000 feet.

b). The following month, Byron Savage, a serviceman at Radio Corporation America, reported a disc flying near his home in Oklahoma City, Oklahoma. The object is believed to have been between 10,000 feet and 18,000 feet and was moving north at high speed without leaving any trail.

With). While flying at an altitude of 10,000 feet on a heading of 300 degrees, 30 miles northwest of Lake Mead, Nevada, an Air Force lieutenant reported seeing five or six white round objects flying in close formation at a speed of approximately 285 miles per hour. This meeting took place on June 28, 1947.

9). The next day, three people, two of them scientists, were driving along Highway 17 to White Sands, New Mexico, in the vicinity of the V-2 launch site, and reported seeing a large disk or sphere moving horizontally at high speed at 10,000 feet. It had a uniform shape and did not have any protruding surfaces such as wings. The object was in view for approximately 60 seconds, after which it disappeared to the northeast. The three observers described the details of the phenomenon in the same way, with the exception that one thought that

I saw condensation.

e). On July 7, 1947, five police officers from Portland, Oreton reported varying numbers of discs flying over different parts of the city. All observations were made within a minute or two around 1305 hours.

0. On the same day, William Rhoads of Phoenix, Arizona, at sunset, allegedly saw a disk moving in a circle near his location and took two photographs. The final images show a disk-like object that had

round front and square tail in plan. These photographs have been examined by experts who have declared that they are true photographic images and not a defect in the film emulsion or in the camera's optics...

5). On July 10, 1947, Woodruff, a mechanic of the Rap-Amercant Airways, reported a round object flying at high speed parallel to the Earth's surface and leaving a trail in the sky. The object appeared near Harmonfield (Newfoundland). Two other people also saw the trail that remained in the sky.

about an hour and was photographed by another employee of the RAA company...

ÿ). On July 29, 1947, Kenneth Arnold, while flying near Tacoma, Washington, reported on the formation of flying objects. The verbal description of their shape closely matches that shown in the photographs taken by G. Rhoads. On the same day, two US Air Force pilots at Hamiltonfield reported two flying discs escorting a P-80 flying towards Oakland, California. (In the press, Arnold's observation of objects was described a month earlier, i.e. June 25. - Approx. Aut.)

1). On August 4, 1947, the pilot and co-pilot of a PC-3 aircraft flying near Bethel, Alaska, reported a flying disk larger than their aircraft. This disk crossed their path at a distance of approximately 1000 feet, and they turned away to avoid collision. The PC-3 was flying at 170 miles per hour, but the disk was in view for four minutes.

3). On November 12, 1947, two flying disks with torches of fire, like those of a jet aircraft, were observed from the captain's bridge of the tanker "Psopdegova", according to the second officer. Tkopdegoga was 20 miles off the coast of Oregon. This officer said that the disks were observed for 45 seconds, and moved at a speed of 700-900 miles per hour in a long arc.

TO). On January 7, 1948, a National Guard pilot was killed while trying to pursue an unidentified object flying at an altitude of 30,000 feet. It is assumed that this pilot lost consciousness due to oxygen starvation, which led to his death (aircraft crash), his last message to the flight director was: “It seems that this is a metal object ... of enormous size ... directly in front and a little higher... I try to get closer for a better view.”

1). On April 5, 1948, geophysicists from Watson's laboratory reported the observation of a round obscure object near Holloman Air Force Base (New Mexico). He was very tall, moved quickly, and seemed to be performing intense maneuvers at high speed. The object was observed for about 30 seconds and suddenly disappeared.

T). A yellow or colored luminous sphere 25 to 40 feet in diameter was reported by Naval Aviation Pilot Marcus Lowe. The encounter took place south of the airfield at Anacostia.

(D.C.) during its flight on April 30, 1948. The Sphere was moving at a speed of about 100 miles per hour at an altitude of approximately 4500 feet. Although the winds in the upper atmosphere were blowing from the north-northwest, the sphere moved north.

P). On July 1, 1948, twelve discs were observed over Rapid City Air Force Base by Major Hammer. These discs were oval in shape, approximately 100 feet long, and flew from

speeds over 500 miles per hour. Descending from a height of 10,000 feet, these disks made a turn with a climb of 30-40 degrees and, accelerating, very quickly disappeared from view.

Work on the collection and analysis of information was continued, and in the next Znak report, which covered 273 investigated incidents, it was already concluded that there was no definite and reliable evidence that UFOs belonged to Soviet developments. The communication also made the following recommendations:

"1. The future activities of this project should be continued at the minimum level necessary for recording, summarizing and evaluating the data that will be collected in the future.

2. When processing received messages, it is necessary to require reliable evidence of observations of an object of the type: photographs, physical evidence, data from radar observations, as well as data regarding the size and shape of the object.

However, despite the conclusions of the Znak project, the fear that the “flying saucers” might turn out to be unknown Russian weapons did not let the Americans go. We must not forget that the Cold War had already begun. For example, a declassified FBI document dated March 14, 1949, stated: “Colonel [deleted] from the Main Technical Directorate of the Air Force (Department
explored

Aircraft Propulsion Research Institute, Oak Ridge, Tennessee) recently confidentially advised the Bureau that the Air Force believes that flying discs are man-made rather than natural phenomena. Four years ago, he learned that the Russians were experimenting with some kind of flying discs. He further learned from [crossed out] that nearly all the flying discs observed by the citizens of the United States came in and out of the country from the north; this indicates a very high probability that they are coming from Russia.”

Project Sign continued its research on UFOs until February 11, 1949, when it was officially replaced by Project Grudge. After this change, UFO research continued intensively using previously obtained data. Before the end of Project Sign, the Air Force reached an agreement with renowned writer Sidney Schalette of the widely read Treasure Europe Posi to write a series of articles on UFOs. In his articles, S. Shalett was slightly ironic about the assumptions about the extraterrestrial origin of UFOs and theorized that the military. the nervousness is probably the result of a big panic about the "flying saucers". He also put forward the idea that the USSR could test secret weapons over US territory, but at the same time noted that the Air Force's air-technical intelligence rejected this idea for obvious reasons. In an article dated May 7, 1949, he wrote to the public: “If you see a ‘flying saucer’, before you contact a journalist from a local newspaper, try to better estimate how high the object was, how fast it flew and what it looked like. Take a photograph or make a verbal portrait and, if possible, try to obtain physical evidence of his appearance. Then sit down and write a letter containing all

this information to the Technical Intelligence Section of AMS Headquarters (Wright-Patterson AFB, Dayton, Ohio)."

One of the readers, apparently having read S. Chalett's article, sent a letter to the Air Force, in which he recalled the demonstration of an unusual apparatus called "No-" ogr'ape ", created in 1939 by a certain Caldwell. The writer of the letter suggested that this and other Caldwell apparatuses might have something to do with the emergence of "flying saucers". On August 19, 1949, Euppa Zip (Baltimore) published an article under the heading "Flying Saucers Found in Maryland." The article described the search for the mysterious inventor Caldwell and his apparatus. However, newspaper reporters were only able to find mechanic John Ganz, who had worked with Caldwell ten years earlier, interview him and photograph him near the surviving parts of the apparatus, which were found in a place called Glen Burnie. A sensation was brewing, especially after an anonymous official in the Air Force leadership told a correspondent for the Metropolitan Bureau Europe Zip that Caldwell's craft were "definitely prototypes of a flying saucer" and that improved models were now flying. The official refused to allow his name to be published, but assured the reporter that "the senior leadership of the Air Force has given him permission to make this announcement regarding the Glen Burnie discovery." “I personally think,” continued the anonymous representative, “that the inventor has moved to some other part of the country and that he (or someone else) is developing new apparatuses and taking them into the air.” When a reporter expressed skepticism that Caldwell's designs could achieve the high speeds attributed to "flying saucers", an anonymous official assured him that the Cogograpе could achieve such parameters with the proper engine, possibly with a turbojet engine. or LRE. sensational news

that the Air Force had uncovered the secret of the origin of the "flying saucers" was published in almost all the newspapers in Baltimore on August 20.

The nation's press picked up the story, and reporters were soon besieging the Pentagon with questions. But meticulous journalists from Washington's "Mems Rossi" found that the concept of "flying saucer", used for Caldwell's apparatus, was far from the generally accepted concept. Another Air Force spokesman bluntly told reporters from Munch Rossi that the apparatus from Glen Burnie had nothing to do with "flying saucers." The press reacted immediately to this statement: “The Air Force says that the two experimental vehicles found near Baltimore have absolutely nothing to do with reports of the appearance of “flying saucers”. Neither their configuration nor their reported flight characteristics allow them to be associated with UFO reports.” After some time, the hype around Caldwell's apparatus subsided, and in August 1949 a report of the "Discontent" project was released, containing an analysis of 244 cases of UFO sightings. This report stated that UFOs did not pose any direct threat to US national security and that “reports of UFOs are the result of:

1. Misinterpretation of conventional flying objects.

2. Mass hysteria or "war psychosis".

3. Jokes and (or) messages of psychopathic personalities”.

The Grievance Report recommended:

"1. Research in this area should be reduced.

2. Available data regarding UFOs must be corrected to ensure that
only

those messages that clearly point to realistic

ness of technical application.

3. The conclusion must be declassified and made public

done."

Based on this final report from Project Grudge, Air Command has concluded that the project has been terminated. However, the study of UFOs did not stop; it was continued as part of normal intelligence activities. And on September 10, 1951, immediately after a UFO was observed visually and on radar screens in the Fort Monmouth area, an order was issued by General Charles Cabell, the head of intelligence of the Air Force, to resume the project. The Discontent project was re-established on October 27, 1951 as one of the subdivisions of the Aircraft Technical Intelligence Center (ATIS) of the AMS, the project management was entrusted to Captain Edward Rappelt. On December 16, the project report published a drawing of a UFO by Lockheed Deputy Chief Engineer Clarence Johnson. The drawing depicted a “flying wing” that C. Johnson and his wife observed from their ranch, located near the Point Mugu Naval Air Station (California).

In March 1952, Project Discontent was renamed Project Blue Book. Despite the change in the name of the project, it also operated under the auspices of the ATIS center located at Wright-Patterson Air Force Base. Project Blue Book was initially guided by the guidelines set out in Air Force Command Letter 200-5, dated April 29, 1952. Letter 200-5 provided for a complex and comprehensive reporting system that all reports regarding UFOs must be sent to at the same time to the headquarters of the Blue Book project and to the Pentagon.

The next Blue Book report provided data on UFO sightings in the area of Belgrade (Yugoslavia)

and in the area of the Baltic coast of Poland. In the spring of 1953, Colonel Metani from the Air Force headquarters proposed to equip a squadron of new Lockheed E-94C aircraft with special search equipment to help the project. This squadron was to be based in those points where the appearance of UFOs was most often noted. The aircraft of the squadron had to be on alert around the clock.

The complex procedure for reporting UFO sightings was replaced by a simpler reporting system set out in AEK 200-2, dated 26 August 1953. AEK 200-2 was then replaced by AEK 80-17, 19 September 1966. d. One of the most significant changes made to this manual was in the area of communication with the public. It was instructed that news releases originate only from the Air Force Command Information Department (AFEC). All Air Force personnel not officially associated with UFO research were to refrain from acting or commenting on UFO reports that could be misleading. In addition, there was another guideline regarding UFO-related procedures, Joint Army-Air Force-Navy Document Number 146 (JAMAP-146), which reminded Air Force personnel of the penalties for making information public without official authorization. regarding the UFO.

On February 3, 1966, on the recommendation of a special committee under the US Air Force Scientific Advisory Board, specialists from the University of Colorado under the leadership of Edward Condon were involved in the work of the Blue Book project, who were supposed to make a conclusion about

future fate of the project. University specialists, having started work on November 1, 1966 and having studied the materials on UFOs, two years later submitted the final report No. 0450-74, the so-called report

Condon. It gave a classification of the reasons why this or that physical phenomenon or object (objects) were taken by ignorant eyewitnesses for UFOs.

The most numerous nighttime sightings of UFOs, according to the findings of the report, are explained by flights of maneuverable aircraft in afterburner. When viewed from the side of the aircraft, the jet stream of the engine (engines) operating in afterburner mode looks like a short bluish flame. When the aircraft is maneuvering, this flame can lengthen, contract, or take on various forms if the aircraft is viewed from any angle from its tail. When an observer sees a flying aircraft from the tail side, the flame will appear to him as a whitish orange ball. If at the same time the aircraft climbs steeply or dives steeply, then in the night sky it looks like a white ball moving up or down, while flying at a constant altitude, the ball looks motionless. The color of the afterburner jet changes when viewed from different angles. When the afterburner is turned off, the flame disappears; for the observer, the luminous ball disappears, the same effect occurs when the afterburner is turned on, but the aircraft has turned its nose to the observer.

Nighttime in-flight refueling is another source of maneuvering lights that can be mistaken for UFOs. The number of aircraft during in-flight refueling can vary from one aircraft accepting fuel from one tanker to several aircraft and several tankers. The tanker, when viewed from below, usually has two lines of signal lights along the underside of the fuselage. Many of the aircraft being refueled in flight have refueling lights that shine ahead, like the headlights of a car. Obviously, an aircraft flying with a tanker or several aircraft refueling in flight will be seen by an observer on the ground as

supernatural group of air lights. This group of lights stays together for a while (refueling in progress), and then the lights diverge in different directions at different speeds (refueling is complete).

Military aircraft use two of the most common devices that can produce quite unusual flashing lights. This is the night shooting of signal rockets and night flashes when photographing. Flares are usually fired down from an aircraft or fired into the air from a ground-based launcher (flare gun). These flares are extremely bright and descend slowly with the aid of a small parachute. They burn within minutes and usually burn out before they reach the ground. Aerial photographs taken at night are usually accompanied by flashes of light. These flashes are of very high intensity, sometimes several flashes are used at the same time. Flares and flashlights are normal sources of light that can cause concern to casual observers.

Bright planets, stars and the Moon are also often perceived as UFOs. If planets or stars are near the horizon at the moment of observation, then due to the peculiarities of the Earth's atmosphere, they can be painted in bright colors, mainly red and green. Due to involuntary eye movements, the lights may appear to move. Venus is often reported shining with an unusually bright white light. This brightness is enough to make Venus look like a fuzzy ball through light clouds, and when the clouds move, it seems that the ball is moving randomly. Many of the observers do not understand that the planets and stars

rise or set, thus giving the impression of an object moving across the sky. The binoculars amplify these small movements many times over. One Blue Book report cited an article from MewuzueK: “A strange-looking elongated bright

the object was above the horizon for several minutes and then disappeared. Several residents of Akron, Ohio, observed him and reported to the Air Force. The Air Force UFO Investigation Team has begun research." The report reports the research team's conclusion from this incident: it is the Moon, often appearing as an ellipse as it approaches the horizon. Sometimes unusually bright meteors cause a flurry of UFO reports as they streak across the sky. In addition, some satellites that can be visually observed in the sky are sometimes mistaken for UFOs.

Many cases of UFO sightings, according to the authors of the report, are explained by the flights of meteorological probes (balloons) and helicopters. Hot air balloons, for example, can reach heights of 12 km or more and are launched from virtually every airfield in the United States. The balls are made of polyethylene and rubber, so when they rise to a great height, they increase in size. They are highly visible on radar screens and often glow at night. At a great distance during dusk or dawn, the orb may look like a silver sphere. Such a case was recorded at the Richard-Gebaur air base. Radars spotted an unidentified object, a pair of E-102A fighter jets were raised on alarm, which, when approaching the target, identified it as a balloon. Helicopters, when observed from a great distance, may look like UFOs. Their movement is slow, and from a distance it seems that the black speck is moving up and down. At night, this movement, combined with a rotating beacon, can create a spectacular spectacle.

Many of the strange phenomena are created by standard aircraft training flights. So, for example, one of the cases was recorded during a night flight of four E-100 aircraft. Landing lights of one of the planes did not turn off and did not retract after takeoff. Training flight over the southeastern

states lasted two and a half hours. And all this time, the headlights shone brightly down, creating the appearance of a UFO flight.

Some UFO sightings can be explained by natural phenomena. For example, sometimes UFOs are observed near powerful power lines. This is still a little-studied phenomenon of the formation of ball lightning in powerful electromagnetic fields. The report contains a reference to experimental work on the creation of ball lightning in one of the departments of the corporation "E-5u5- {em$ [shs." in Falls Church. In one of the experiments, ammonia vapors were ignited using a high-voltage electric discharge, and a small luminous ball was formed, which began to make erratic movements, reminiscent of the movements of a UFO. The ball then hung in one place for several minutes, then very randomly mixed up, sometimes developing a high speed, then suddenly disappeared. In several experiments, several similar objects were reproduced, which looked similar and flew in formation. The scientists also discovered that their man-made UFOs could be tracked by radar and reproduced a charged field around them that could interfere with radio communications. |

Another electrical phenomenon well known to pilots is the mysterious "St. Elmo's fires". "St. Elmo's fire" is a manifestation of static electricity, which from time to time accumulates on the leading edges of an aircraft wing or on the windshield of a lantern

cockpit, they are visible when flying at night. The report concludes that there are no doubt other little-studied phenomena associated with electromagnetic fields. It was noted that observers may perceive some weather phenomena as UFOs (contrails, ionized clouds, etc.).

The human factor plays a significant role in

UFO sighting. The report specifically notes two main psychological patterns of human behavior: the first was formed under the influence of the US media, the second is determined by the psychological need of the individual for the existence of UFOs or people accepting their presence. There is no doubt that the media have stimulated general interest in UFOs. The term “flying saucer” was coined by the press in 1947. According to the authors of the report, many books and articles are written with the expectation of sensation rather than coverage of facts. In many cases, it turns out that some facts are artificially attracted, and some facts that do not support the story being described are omitted. As an example, the case of the appearance of numerous reports in 1949 is given. The peak period in reports fell on May, i.e. immediately following the publication of the article on UFOs in the Savoy Eugene Rose and the BBC's official press release. The number of messages during this period exceeded five times the number of messages in previous months. The most interesting thing is that almost all messages contain links to the mentioned official publications. Blue Book statistics show that as soon as one UFO incident is published in different publications for several days in a row, the number of reports of UFO sightings increases dramatically throughout the country.

In recent years, under the influence of the media, the population has begun to pay more attention to the sky. Probably the first and most disgusting impression about the appearance of extraterrestrial beings was received by the Americans on October 30, 1938, when Orsen Welles made his famous radio broadcast based on the novel by H. Wells "The War of the Worlds" about the invasion of the Martians on Earth . Although Welles dated this hoax to the traditional Halloween holiday, some radio listeners took it

dacha as a documentary report, which led to panic. It is not known whether this radio broadcast was a whisper of public opinion, but it turned out that there is nothing more intriguing, attractive or equally controversial for the layman than visiting the Earth by alien beings. The theme was picked up by film and television; most books intended for the general public support the existence of UFOs without even trying to be based on scientific facts. This pressure from the media, movies and TV definitely increases the likelihood that the average person who sees any strange object in the sky will be inclined to consider it a UFO.

Dr. William Kauffman, director of the Griffith Observatory (Los Angeles), explains human behavior regarding UFOs by the fact that many people today want to turn away from the harsh reality and wait for the arrival of an extraterrestrial superintelligence that will eliminate everything bad in their lives. Many religious and philosophical groups have needs that are filled by the possibility of UFOs. Dr. Ernest Hilgard, a psychologist at Stanford University, believes that as society gets richer, there is a need for man to become a more important element of the universe. Belief in the existence of other worlds fills this need. Dr. Donald Warren of the University of Michigan has a different take on the UFO phenomenon. He sees UFOs as an opportunity for salvation for some people without endangering their social environment. A person who is not satisfied with his

own socio-economic position, can become the person who will give himself importance, believing in “flying saucers”. The desire to believe in the existence of UFOs has made millions of Americans susceptible to jokes and hoaxes. In this regard, many photographic fakes of UFOs have appeared. Possibly one of the more hilarious hoaxers

tion was a photograph of a humanoid of small stature. Later, the hoax was revealed - a shaved monkey was photographed as a humanoid.

One of the main critics of Condon's report was the public organization of UFO observers, the National Committee of Aerial Phenomena Investigators (Mapa! ipueseyraiot Sopitiye South Aepai Rhetepa - MISAP). As shown in the Condon report, MISAR has spent a lot of effort in the past trying to influence Air Force and Congressional UFO policy. MISAR made some effort to influence the work of members of the Condon group, and when it became clear that this was not successful, MISAR called the report "biased" and not credible. The National Academy of Sciences supported Condon's report and concurred with his conclusions, stating that the report's methodology was correct and its conclusions fair. The Academy of Sciences also agreed with the report's recommendation to terminate Project Blue Book.

While many have criticized the conclusions and recommendations of the report, no one has denied that this is the most perfect and complete review of Project Blue Book ever undertaken. Based on the conclusions of the Condon report, the Air Force announced on December 17, 1969, the completion of the Blue Book project and sending its reports to the Air Force archive (Maxwell Air Force Base, Alabama).

During the 22 years of the existence of the projects "Sign", "Discontent" and "Blue Book" 12,618 reports of UFO sightings were investigated, of which only about 6% of the sightings were found to be unexplained. Back in 1953, the research team working on these projects came to the clear conclusion that all cases of observation of "flying saucers" can be explained by "quite terrestrial reasons, so there is no reason to resort to the" services "of aliens from space ". It would seem that after such a long and thorough study, the problem of UFOs can be closed. od

2 Man-made UFOs zz

Vachesptse Kazyrky, Mihsig Kazlviree

However, the presence of 6% of unexplained cases of UFO sightings, as well as the low probability that these unidentified vehicles belonged to the Soviet Union and could so easily fly over the territory of the United States, more and more strengthened ufologists in their confidence regarding the extraterrestrial origin of objects. It is believed that the birth year of ufology is 1947. Since that time, first in the United States, and then in other countries, a wave of fascination with aliens and their UFOs began, sometimes reaching hysteria.

2. GERMAN UFO TRAIL

The wave of interest in the search for UFOs of extraterrestrial origin grew, but quite unexpectedly for ufologists on March 25, 1950, an article was published in the Italian "I Slogaje a Cana" in which the Italian scientist Giuseppe Belluzzo revealed the secret of the origin of UFOs.

D. Belluzzo, born in Verona in 1876, was a major specialist in the field of engine building, he built the first Italian steam turbine, later improved by him for installation on cruisers and battleships. In addition to scientific activities, Professor D. Bellucio was also involved in politics: under the fascist government in Italy

he was elected to parliament, and for three years even served as minister of the economy. According to him, the luminous UFOs observed during the war were simply disc-like “flying bombs” invented by him, which, in the strictest secrecy, were developed

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Discs by D. Belluzzo

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Vachestav Kozyrenv, Mikhoig Kozyrÿÿ

started under his leadership from 1942, first in Italy and then in Germany. As proof of his innocence, D. Belluzzo presented sketches of some variants of his developments of those years. He was convinced that the UFOs that appeared after the war were based on the developments of the Germans, which were captured in large numbers by the Americans and are now being developed by them.

The military reacted immediately after the publication of D. Belluzzo's statement: a refutation of one of the generals of the Italian Air Force appeared in the press. However, this refutation was followed by an article in one of the Italian newspapers, in which the author, a certain Lino Scalione, claimed that D. Belluzzo's statement was true. L. Scalione during the war, as part of one of the British special forces, was preparing to be thrown in order to capture samples of secret German weapons in northeastern Norway, where, according to him, the Germans were secretly working on disks.

Less than a week had passed since the publication of the article about the work of D. Belluzzo, when the "Der Stream" (Germany) published an article about the work of the German scientist and designer Rudolf Schriever. The article stated: "Former Luftwaffe captain and aircraft designer Rudolf Schriever, who experimented with 'flying saucers' in the early 1940s, expressed a desire to build one for the United States in six to nine months. The 40-year-old university graduate in Prague said that he had been designing such a machine before the surrender of Germany and that the designs had been seized from his laboratory. He says the car was capable of speeds up to 2,600 miles per hour with a range of up to 4,000 miles. Shriver works as a chauffeur for the US Army in Bremerhaven."

Among the declassified post-war FBI documents, there is one curious paper - a report by a secret FBI agent to his leadership about his contact with a man who moved from Europe to the USA in 1952

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Man-made UFO

for permanent residence. This man from 1942 to 1945 was a prisoner of one of the concentration camps located on the territory of Poland. In 1944, he had a chance to see a disk-shaped apparatus, which “....slowly rose to a height of 15 m and just as slowly moved horizontally until it disappeared behind the trees. When lifting and during movement, a howling sound was heard from the apparatus. This report is also curious because in the midst of the hype around UFOs and all sorts of arguments about their origin, in particular alien, the American top leadership, apparently, had information about the German trace in the origin of unusual devices.

A few years ago, from the partially declassified archives of the US Patent Office, it became known about another curious fact: on June 5, 1945, the American Alexander Weiger received a patent for an unusual vertical take-off and landing aircraft, which

ry was named by him "discopter" (patent No. 2377835). - "Discopter" with a diameter of 6.2 m hp outwardly resembled a plate,

along the axis of the apparatus was the "Discopter" cockpit, closed by A. Weiger

top round lantern.

Inside the body of the apparatus around the cockpit a fan with a diameter of about 4 m was rotating, which created vertical thrust. To create horizontal thrust, there were two small nozzles on the edge of the disk behind the cab, through which part of the air was ejected. The biography of the inventor A. Weiger is curious. He was born in Indonesia in 1901, at the age of 15 he was sent to

telees to Holland for education. After graduating first from the Polytechnic and then from Dorlrecht University with a degree in shipbuilding, he moved to the USA and worked as an engineer in Seattle for some time. At the age of 30, having become interested in sculpture, A. Weiger entered the Art Institute of Chicago, then again left for Holland, where he studied anatomy and drawing at the Academy of Arts. This was followed by studies in Paris as an engraver, and then in Italy. After completing his studies in Europe, he returned to the US, working as an artist, blacksmith, sculptor, photographer and teacher, opening his own studio in Berkeley, California.

In 1941, he was drafted into the army, and since. Since he was fluent in five languages (Malay, Dutch, Italian, German and English), he was sent to serve in the intelligence agencies. In 1943, he sent an application to the patent office for the invention of the "discopter". Fascinated by his invention, he made numerous drawings of the apparatus, which he hoped would be used as a convenient means of transportation in American cities. A. Weiger sent proposals to various US organizations and departments in order to get them interested in his invention. The result of his actions was a negative response from interested organizations (including the military), after which A. Weiger, having received a patent for his invention, no longer returned to this topic, but continued to engage in art. He died in 1989.

The attentive reader may have questions about the invention of the "discopter". How could a person who had no aviation education and devoted his whole life to art invent an apparatus of a revolutionary design, and why did the competent American authorities, connected to the study of UFOs, “forget” about the existence of Weiger's patent and his proposals? The answers are self-evident. Most likely before

(1945)

Patent No. 2876965 G. Streiba (1959)

Patent No. 3051414 D. Frost (1962)

Mo patent 2863621 D. Dwis (1958)

Patent Mo 2772057 D. Fisher (1956)

The savvy American for his invention used the drawings of some German disk, which fell into his hands while serving in intelligence. The competent authorities kept silent because all the information concerning the trophies captured in Germany was classified.

In February 1989, the following report about the “flying saucer” was published in the German magazine “Elischege”: “A German official reported that at the airport in Prague in August-September 1943 he and saw inside the hangar a disk approximately 5-6 meters in diameter. Its body is relatively thick in the center. At the bottom, the apparatus had four tall and thin supports. Color - aluminium. Height - almost in height with a tall person. The thickness along the periphery is approximately 30-40 cm ... Together with others, I saw that the device had emerged from the hangar. First we heard the roar of the engines, and then we saw that the outer side of the disk began to rotate, and the apparatus began to move slowly in a straight line towards the southern end of the field. He then rose nearly one meter into the air. After moving a distance of approximately 300 meters at that height, he stopped again. Its landing was rather rough... Later the aircraft took off again and headed to reach the end of the airfield this time.”

In the second half of the 1950s, a book by the former major of the German army Rudolf Luzar, The German Secret Weapon of the Second World War, was published. In it, R. Luzar, with poorly hidden bitterness, describes in detail the technical achievements of “a small, hardworking and honest nation that lost the war”: jet engines, infrared and thermal imaging systems, proximity fuses, missile guidance systems, etc. Among them are other things, he spoke about the “flying saucers”, the authors of which were German inventors, and that work on unusual projects began in 1941. He even named the names of the leading developers, among whom were

Schriver, Habermol, Mite and Belluzzo (however, the author distorted the name of the Italian, calling him Belonzo).

According to R. Luzar, there were two main centers of disk technologies in the Third Reich: one, headed by Mite, was located in Breslau (Lower Silesia, now the Polish city of Wroclaw), the other was in Prague (Czechoslovakia). The design of Mite's apparatus was described as a flat disk 42 m in diameter, equipped to control jet engines. Shortly before the capture of the plant where the apparatus was built with the Soviet troops, the Germans blew up the disk. However, the specialists who worked on the disc were taken to the Soviet Union, where, according to Luzar, they continued to work on this topic. Another disk, created under the direction of Schriver and Habermohl, was at the stage of flight tests by the end of the war. The first test flight of the disk, according to Luzar, took place on February 14 at a training ground near Prague. The author writes: “In three minutes, the device gained an altitude of 12,400 m and reached a speed of 2,000 km / h in level flight.”

In 1958, a group of specialists led by Dr. S. Possoni, on the instructions of the US Air Force Aviation and Technical Intelligence Center, performed a technical examination of the book by R. Luzar. I must say that Possoni was the head of a special group of analysts who worked in the field of scientific and technical intelligence. Among other things, the Americans were interested in Luzar's assertion that some of the specialists who worked on disks ended up in the Soviet Union. The group's final report was classified.

Despite the paucity of information that has appeared since the beginning of the 1950s, the following picture began to emerge. During the war years, several dozens of

models of unusually shaped aircraft (disk-shaped, cigar-shaped, etc.). Over their cos

The best German specialists worked in Denmark, including: W. Schumann, W. Schauberger, R. Mite, R. Schriver and others. The Technical Directorate of the SS (55-E-TU), and the development managers had high SS ranks, for example, rocket designer W. von Braun in 1940 received the title of SS Sturmbannführer. The prisoners of the Nordhausen, Buchenwald, Dernau, Mauthausen, and other camps in the number of several tens of thousands of people were involved as labor force to carry out these secret developments. One of the reasons for the paucity of information about these developments was that all prisoners were destroyed after the work was completed. Evidence of this is the recognition in August 1958 of one of the authors of the “flying saucers” Viktor Schauberger: “The model tested in February 1945 was built in cooperation with first-class engineers from among the prisoners of the Mauthausen camp. Then they were taken to the camp, for them it was the end.” Another reason for the lack of more or less reliable data on the presence of a “wonder weapon” was the destruction at the very end of the war of secret German equipment and related documentation by special SS teams that carried out the order of the top leadership.

stva.

These testimonies about the development by the Germans of devices very similar to post-war UFOs came as a shock to ufologists. But soon a way out was found from this situation, which did not contradict their main concept: the outstanding (according to Luzar) characteristics of “flying saucers”, which were far ahead of their time, could not be the result of the work of German developers, but were the result of the transfer the Germans of the relevant knowledge by aliens. Fortunately, one of the ufologists remembered that in the American press in 1947 an article by Willie Ley was published, in which

he mentioned the Vril society. In his article, W. Ley, a prominent German rocket scientist who was forced to move to the United States after the Nazis came to power, described a small Berlin circle founded in 1925, whose members allegedly were in contact with the mysterious tribe "superhuman". Members of the Vril society prepared the conditions for the "superhumans" to establish power over the world through the power of Vril.

The origin of the Vril society dates back to the 19th century; the English writer Edward Bulwer-Lytton is considered to be the ideological inspirer of this society. It was he who, in his fantastic novel The Vrils, the Coming Race, published in 1871, described the powerful tribe of supermen Vril-Ia, living somewhere in the bowels of Tibet. From time to time they come to the surface to subjugate people with the help of a mysterious force called "Vril", which is impossible to resist. "Vril", according to Bulwer-Lytton, is a powerful energy field, which is possessed by both living beings and inanimate objects. Anyone who penetrates the secrets of this energy will learn to rule over himself, over those around him and over the whole world. To master this unknown power, accessible only to initiates, was the main goal of the members of the Vril society.

But what did this society have to do with the German "flying discs"? The fact is that according to one of the hypotheses developed by members of the Vril society, superhumans from the Vril-Ya tribe made tunnels in the Earth, through which they flew in high-speed devices that had the shape of a disk. The drawings of these devices were allegedly handed over to a member of the Vril society, a certain doctor W. Schumann, who, on their basis, designed an airship with

electromagnetic motor. According to another hypothesis, Vril-Ya are aliens from outer space, who periodically visited Earth for thousands of years to observe spirits.

ny development of mankind. After the emergence of the Nazi Party, whose leadership members were considered exceptional individuals and “initiated” into various mystical teachings, the aliens revealed some secrets to them, including how to build “flying saucers”.

At the end of the 19th century, theosophy became widespread in the countries of Western Europe - a new universal religion that combined fragments of Eastern religions and myths. Theosophy, according to its followers, was supposed to supplant Judaism, Christianity, Islam, Hinduism and other religions. In return, everyone was offered a rather strong cocktail, consisting of “esoteric Buddhism”, the establishment of a worldwide “brotherhood” and a hierarchy of “secret masters”. Shortly after the formation of the first London Circle in 1875, Theosophical Societies began to form all over the world. The founder of theosophy is Helena Blavatsky, a native of Russia, who wrote her monumental work The Secret Doctrine. One of the last works of Blavatsky was the book “Stanzas of Dzyan”, the text of which she allegedly met in a secret Tibetan monastery in 1888. This text dealt with some highly developed civilization that existed in the Gobi desert region and died during the disaster. However, the surviving superhumans went to the Himalayan caves and founded two underground countries — Shambhala and Agharti.

Soon several groups of theosophists appeared in Germany, later they received the generalized name "ariosophical". One of these groups was the New Order of the Templars, which brought together supporters of racist concepts, which were based on the same idea: a purely Aryan type (light, blue-eyed, etc.) is a carrier of a special mental energy, about

vanishing from space. Races that do not fit this type (Jews, Gypsies, Slavs and others) are inferior and must be expelled. It will be a kind of sacrifice to the pagan gods who created the Aryans and provide them with patronage. The new Knights Templar chose as their emblem a counter-clockwise swastika, the swastika later used by the Nazis. According to some reports, the young Adolf Hitler and Heinrich Himmler, the future head of the SS, subscribed to the Ostara newspaper published by the order.

In 1912 a new group, the German Order, was founded. Only pure-blooded Germans were accepted into the German Order, who could prove “purity of blood” for three generations. The source of all troubles was declared "racial mixing", and according to the members of the group, Germany will have to give the world a superior race that will rule all of humanity. The leadership of the orlen considered themselves to be representatives of the “secret rulers of Tibet”, the heirs of the Atlanteans living in the Himalayas and subject to the “prince of fear” – also known to the “initiates” as the “prince of peace”. The mysterious figure of the “prince of the world” was endowed with “power over life and death of everything that exists on Earth”. Contact with her was established through meditation and extrasensory sessions, as well as Tarot cards and a special radio receiver. |

In August 1918, the order received a new name - "Thule". This name was given in honor of the mythological land inhabited by the mysterious civilization of the Hyperboreans. Thule Land was located in the Far North, where earth and sky touched, and was a gateway to other

galaxies and worlds. According to the teachings of the Order, the first Hyperboreans were aliens from a distant planet whose ship was wrecked. After some time, aliens settled in different parts of Europe. It is from them, according to the teachings, that the Basques, Bretons,

Celts, Scandinavians and Aryans, the emblem of the Thule society was a dagger, the blade of which is entwined with symbolic oak leaves, and the handle emits rays of divine Hyperborean light.
Above the handle was a swastika, turned to the right. The Thule Society not only created its own paramilitary brigade, but also provided support to other similar formations, such as the Munich Viking detachment, which fought against the German socialists. In 1919, the Nazi Party was formed, the backbone of which was made up of members of the Thule Society: the future Deputy Fuhrer Rudolf Hess, the main ideologue of Nazism Alfred Rosenberg, Dietrich Eckart, Karl Haushofer and others.

Below we will try to figure out what kind of mysterious aircraft the Nazis created during the war, using the mystical knowledge of members of the German Order and Thule societies, transferred to them by aliens.

H. THE DEVELOPMENT OF THE WONDER WEAPONS IN GERMANY

We remind the reader that both K. Arnold, who opened the era of ufology, and K. Johnson described the UFOs they observed in the form of “flying wings”. Although this aerodynamic configuration is rather unusual, it is of quite terrestrial origin. In the pre-war years, designers from different countries were engaged in the construction of devices - “flying wings” and the study of their flight characteristics: A. Zoldenhoff (Switzerland), A. Lippisch and the brothers R. and V. Horten (Germany), V. Burnelli (USA) , B. Cheranovsky, V. Chizhevsky, P. Bening, A. Senkov, A. Lazarev, I. Kostenko and others (USSR). In addition, intensive studies were carried out in Germany on the characteristics of aircraft made according to the “tailless” scheme. The undisputed leader among German aircraft designers was Professor Alexander Lippisch.

A. Lippisch interceptors

In 1937-1938. A. Lippisch, having started work on a high-speed fighter with a liquid-propellant engine (LRE) and exploring various aerodynamic schemes for it, creates a small experimental aircraft - the "flying wing" "Delta U", received at KIM (Ministry of Aviation of Germany) designation PE 40. As a power plant, an Argus air-cooled engine with a power of 100 hp was used, which rotated a pusher propeller using an elongated shaft. The tips with control surfaces were bent down, on the trailing edge of the wing closer to the tips there was a pair of elevons, a two-seat cockpit with an in-line arrangement of seats occupied the nose of the center section. The chassis was tricycle: two front

the struts were retracted back into the center section, the rear fixed strut-ski simultaneously served as a fuse for the propeller when landing with high angles of attack. During the flight tests, the PE $ 40 crashed and was broken, further work in this direction was stopped. Based on the analysis of the results of flight tests of his aircraft (“tailless” OEZ 39 and “flying wing” UES 40), as well as the results of purge models with different wing configurations, A. Lippisch came to the conclusion that for the future fighter, the most acceptable scheme is "tailless".

Taking this into account, A. Lippisch began the development of a new aircraft, which received the designation RES 194 in the KEM, in the design of which a keel was used in the tail section of the fuselage. Aircraft model blowdowns carried out in 1937-1938 in the large wind tunnel of the AUA Institute gave good results. At the end of 1938, KIM handed over the project to Messerschmitt AG to eliminate the difficulties associated with the special regime of secrecy and speed up the work. In the Design Bureau of the company's leading plant in Augsburg, a special “Department 1” was created, where in early January 1939 A. Lippisch and his employees were transferred to work. The development went under the designation 11 R.01, but when the first prototype aircraft was built at the end of 1940, V. Messerschmitt ensured that KI-M assigned it the designation Me 163.

The Me 163 was similar to the OE$ 194, but had a number of improvements. The wing (span decreased from 10.4 m to 8.85 m) with automatic slats at the ends had a sweep along the leading edge, which varied from 27° at the root to 32° at the tips. The keel and rudder were enlarged, the kinematics of the control system were modernized, the cockpit canopy was made more streamlined. A more powerful LRE K P-203V with a thrust of 750 kgf was used as a power plant. The chassis was the same as that of the PE 194, i.e. takeoff was on

dumped two-wheeled cart, and landing - on a retractable ventral ski, in the rear fuselage there was a small support ski retractable in flight.

In the spring of 1941, flight tests of the first prototype Me 163A without an engine began. According to the test results, the automatic slats were replaced with profiled slots in the wing toe, which tightened the stall into a tailspin, and landing flaps were installed to reduce the run length. The first flight of the Me 163A with an engine took place on July 13, 1941. In the course of further tests, a speed of 885 km/h was achieved; no Me 163 could achieve a higher speed during take-off from the ground due to the small amount of fuel. On October 2, the car, fully fueled, was lifted by a towing aircraft to an altitude of about 4000 m. After uncoupling from the tug and turning on the engine, test pilot H. Dittmar managed to reach a speed of 1004 km/h, which slightly exceeded the calculated one.

In the summer of 1944, two squadrons of the first group of the 400th Fighter Squadron (1/7C 400) began to be equipped with serial Me 163B aircraft, the task of which was to cover important industrial facilities from allied air raids. In December, a second group of two squadrons was formed in the same squadron. The first interception of American B-17 bombers took place on August 16, 1944 and ended in vain. The experience of combat use has shown that the Me 163V

dangerous in operation for flight and ground personnel due to the extreme toxicity and explosiveness of the fuel, and when intercepting it is extremely inefficient. Until the end of the war, only 11 successful attacks were registered. Characteristics of the Me 163V "Kotef" ("Kometa"): wingspan - 9.32 m and its area - 19.6 m?, aircraft length - 5.7 m, height - 2.74 m, empty weight - 1980 kg , take-off weight - 4310 kg, maximum speed - 900 km/h, service ceiling - 12,000 m, time to climb 11,000 m - 3 minutes, flight duration with engine running - from 8 to 15 minutes, range - up to 100 km, armament - two guns of 30 mm caliber plus the possibility of installing on each console one cassette with 5 unguided rockets of 50 mm caliber, launched vertically upwards according to the signal of photosensitive sensors.

Despite the fact that in the spring of 1943 Lippisch left the Messerschmitt company, KEM retained his control functions in the Me 163 program. By the end of 1944, the Messerschmitt company built

three experienced Me 163S. These machines differed from the B series in a slightly enlarged fuselage, a pressurized cabin with a more streamlined canopy, and a two-chamber NUK 509S-1 liquid propellant rocket engine. However, this project did not go into the series.

In the same year, the Me 1630 project was developed. The car had a new, more elongated fuselage, a three-wheeled retractable landing gear, a teardrop-shaped lantern protruding above the fuselage, increased fuel tank capacities and a two-chamber NUK 509S-1 rocket engine. The first experimental machine of this series was built in the late spring of 1944 and passed flight tests in a non-engine version. However, KIM, considering that the Messerschmitt company, due to being busy with other programs, would not have time to bring this project to mass production in time, transferred the Me 1630 project to the Junkers company.

After some constructive refinement in August 1944, at the Junkers plant in Dessau,

a prototype aircraft was built, which received the designation ÿi 248U1 at KIM. The results of flight tests with the NUK 509S-1 engine showed that the machine is superior to the Me 1638 in all respects. At the end of December 1944, KEM decided to urgently start serial production of ÿi 248. However, W. Messerschmitt succeeded in changing the designation of the aircraft to Me 263A, arguing that the main technical solutions implemented in it were obtained at the firm "Messerschmitt". By the end of the war, not a single production Me 263A was built.

Serial production of the Me 163B continued until February 1945, by which time 237 vehicles had been built. In 1944, Japan bought licenses from Germany for the production of the Me 163B and the NUK 509A engine, but the first experimental Japanese aircraft, designated 38MI, took off only on July 7, 1945. Only seven prototypes were built before the surrender of Japan.

At the end of April 1943 A. Lippisch moved to Vienna due to the aggravation of relations with W. Messerschmitt, where he headed the newly created research institute. There he developed a design for a single-seat Sh R.11-121 with a large delta-shaped wing as a fighter-bomber and high-altitude fighter. The armament consisted of two cannons in the forward fuselage. Fuel tanks were located in the wing consoles.

The first single-fin variant (fighter-bomber) had two Limo 0048 turbojet engines located in the center section. Jet jets from the engines were shielded from below by the wing, under the fuselage there was a compartment in the form of an influx, in which a 1000-kilogram bomb was placed.

The second two-keel version (high-altitude fighter) was equipped with a ramjet with a flat jet nozzle. The air intake inlets were located in the leading edge of the wing, and the gas jet flowing from the engine was shielded from below by the wing. Under the wing were a mustache

take-off and landing flaps were installed, and the wingtips could turn down in flight. The main landing gear, unlike the first version, were two-wheeled. The takeoff of the aircraft was carried out with the help of two solid-propellant launch boosters installed above the wing between the keels. After the ramjet was launched, the boosters were dropped under the action of the engine's jet stream.

At the end of November 1944, the top leadership of the Luftwaffe decided to produce a fighter-bomber 11 R.11-121 in

cooperation with the firm "Henschel", however, there is no information about the beginning of the construction of a prototype.

Characteristics: wing span with a sweep of 45 ° - 10.6 m, its area - 50 mg, aircraft length - 6.8 m, height - 2.7 m, fuel weight - 2400 kg, takeoff weight - 7260 kg, maximum speed at an altitude of 10000 m - 900 km / h, range - 3000 km.

The project of the supersonic fighter M R.12 with a ramjet was developed in several versions. The swept-wing fighter versions, which were completed by the end of 1942, were equipped with a liquid fuel engine. The engine air intake was located at the bottom in the nose of the fuselage; a retractable ventral ski was used as a landing gear. Armament consisted of two cannons on the sides of the cockpit.

Characteristics: wingspan - 11.0 m and its area - 20 m?, aircraft length - 7.0 m, takeoff weight - 7260 kg, maximum speed at an altitude of 5900 m - 1200 km/h, range (with two additional hanging tanks) - 3000 km.

Later versions, the last of which are dated May 1944, were an aircraft with a delta wing area of 12 m?

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RBukotvarichene UFO

forms. For landing, a retractable ski was installed under the fuselage. As one of the options for the power plant, it was supposed to use a ramjet engine operating on fine coal dust with a rotating disk-shaped combustion chamber.

In 1944, A. Lippisch began developing a project for a supersonic aircraft 11 R.13. A series of blowdowns of models 11 P.13 was carried out in the AMA supersonic wind tunnel in Göttingen at flow velocities corresponding to M = 1.0-2.6. The supersonic machine was developed in two versions - I R.13Za and Sh R.13b.

P R.13a had a thick delta wing with elevons and flaps, a large triangular keel with a rudder. The sweep along the leading edge of the wing and keel was .60°. The cockpit of the race. It was relied on in front in JA P.1Za keel, and the glazing of the cockpit canopy did not protrude beyond its dimensions. The power plant consisted of two engines: the main ramjet and the auxiliary rocket engine, located in the root part of the keel above the main engine. It was supposed to replace aviation fuel, which was in short supply at the end of the war, to use finely dispersed coal dust for ramjet engines.

The main engine was located in the center section, its air intake was moved forward from the fuselage. The trailing edges of the flat jet nozzle were connected to the control system and could deflect the engine thrust vector up or down by a certain angle. On the sides of the ramjet were air longitudinal ka

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Bachespsv Kaztirev, Mikhail Kazleÿÿ

nals used to cool the outer sections of the wing and to force coal dust out of the fuel tanks into the combustion chamber.

After accelerating the aircraft with the help of a liquid-propellant rocket engine and reaching a certain speed, coal dust was fed into the combustion chamber of the ramjet engine through nozzles. This dust was ignited by passing through a slowly rotating cylindrical igniter grid, the axis of rotation of which was

located perpendicular to the flow direction. The rotation of the igniter cylinder protected the grid from the formation of soot on it and, as a result, from burning through and its failure. It was believed that a supply of coal dust of 800 kg would be enough to ensure the flight of the aircraft for 45 minutes. The takeoff of 11 R.13a was to be carried out with the help of a drop start cart, landing was supposed to be carried out on a retractable ventral ski.

Characteristics of M R.13a: wingspan - 6.0 m and its area - 20 m?, aircraft length - 6.7 m, height - 3.25 m, take-off weight - 2295 kg, maximum speed at an altitude of 5900 m - 1200 km / h, cruising speed - 850 km / h, armament - two guns of 30 mm caliber.

P R.136 differed from the previous version by the presence of a two-keel empennage and side air intakes. Landing was carried out on a retractable ventral ski; for side support, wingtips bent downwards were used.

Characteristics of M R.136: wingspan - 6.9 m, aircraft length - 7.2 m, height - 2.0 m.

At the beginning of 1945, the construction of a glider under the designation OM 1 began, which was intended to study the controllability of an aircraft at low speeds and, in fact, was a prototype of the projected 1 R.1Za. To maintain centering, the cockpit was lowered slightly and moved closer to the nose. Instead of an air intake, a sharp nose cone was installed on the VM 1, glazed from below to improve visibility

pilot. The wing and keel with plywood sheathing had a two-spar wooden structure. The car was equipped with a three-wheeled landing gear that retracted into the wing.

During flight tests, it was supposed to raise the OM 1 on a carrier aircraft 5: 204 modified for this purpose. The speed of 560 km/h was to be achieved in the dive mode. It was planned to install a rocket engine in the future, which would allow reaching a speed of 800 km/h.

The unfinished car was captured by American troops at the end of the war. After the war, at the request of the American command, the OM 1 was completed by the Germans, after which the device was transported to the USA on a specially converted C-47 aircraft. There he was carefully studied and passed flight tests, and then was transferred to the Smithsonian Institution.

Characteristics of OM 1: wing span with a sweep of 60 ° - 6.0 m and its area - 20.0 m?, length of the apparatus - 6.325 m, height - 3.25 m, empty weight - 297 kg, take-off weight - 460 kg, height uncoupling from the carrier aircraft - 8000 m, maximum speed (when diving) - 560 km/h, landing speed - 72 km/h, descent speed - 6 m/s.

In the research program of A. Lippisch, it was envisaged to build three more similar devices of the OM series:

• OM 2 was to be equipped with a turbojet engine to study the behavior of the aircraft structure at speeds from 800 km/h to 1200 km/h; |

• RM 3 had to be equipped with a rocket engine to achieve a speed of 2000 km/h;

• OM 4 was supposed to be developed for research at high altitudes, its characteristics are unknown.

In addition to A. Lippisch, V. von Braun and Z. Bachem worked in the framework of the program for the creation of a missile fighter-interceptor.

Von Braun interceptors

In 1939, W. von Braun submitted to Goering "Proposals for the development of a fighter with a rocket engine." In these proposals, he argued the advantages of an interceptor aircraft with a vertical launch over the Me 163 rocket fighter with a horizontal launch, developed under the "X Program" under the leadership of A. Lippisch. The missile interceptor proposed by von Braun had a cigar-shaped fuselage, a wing span of 8.5 m with a small sweep along the leading edge, and a conventional tail unit. In front of the fuselage is

V. von Braun's interceptor was a small airtight (1st version) cockpit, in which

the swarm was located sitting

(in level flight mode). For the pilot's view, there was a small front glazing in the cockpit; for navigation at night, it was supposed to install a moving map-type device in the cockpit with an indication of the current position of the aircraft. Behind the cockpit were tanks with propellant components - alcohol and liquid oxygen, the fillers were located on top of the fuselage. A two-chamber liquid-propellant rocket engine was located in the tail section of the fuselage; gas rudders were located on the main nozzle section, which were used to control at low speeds during takeoff. A retractable ventral ski was used as a landing device.

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Man-made NGOs

Ms. The armament consisted of four cannons in the root of the wing - two on each side. The thrust of the rocket engine during takeoff was 10,160 kg, and in level flight - 771 kg.

The non-receiver was supposed to take off vertically from a stationary starting position. During the climb phase, the aircraft had to be controlled automatically. The maximum climb height was 8000 m, and the rate of climb at this point was 151 m/s. After reaching a predetermined altitude, the pilot took control and carried out a horizontal flight, the maximum speed of which was 700 km/h. Targeting was supposed to be carried out from the ground. After completing the task, the aircraft had to go in gliding mode to the nearest airfield, landing was to be carried out using the extended ventral ski. The estimated flight time was 15 minutes.

Pre-launch preparation took place in the hangar. It housed two dozen aircraft at once, and each interceptor was located vertically, resting its wing consoles on horizontal parallel rails, and the tail section on a four-wheeled cart. On the rails, the plane, together with the trolley, moved to

Interceptor W. von Ab Braun (2nd version)

launch pad, from which vertical take-off was carried out. Next to the hangar there was a flight control command post and a radar station. However, von Braun's idea did not receive support in KEM. The main disadvantages, according to the specialists of the Technical Department of KIM, were the high cost of facilities and equipment of the

plex, the vulnerability of the launch complex and the need to refuel the aircraft with fuel components immediately before launch (liquid oxygen quickly evaporates after refueling).

Interceptor characteristics: wingspan - 8.5 m, aircraft length - 9.3 m, height - 3.02 m, takeoff weight - 5000 kg, horizontal flight speed - 700 km / h, rate of climb - 151 m / s, practical ceiling - 8000 m, flight time - 15 minutes.

In the spring of 1941, von Braun proposed a second version of his interceptor, replacing the fixed launch position with a mobile launcher. The aircraft was generally similar to the first version, but had some differences: the keel and rudder had a smaller area, the glass area was increased to improve the pilot's view, the wing began to have a small transverse U. In addition, the developers switched to another composition of the fuel components is U oj (vinyl isobutyl ether) and ZU-Zuoy (a mixture of 90% nitric acid and 10% sulfuric acid). The launcher was a tractor with a trailer on which the aircraft was transported. Before take-off, the aircraft was installed vertically between the tractor and trailer, leaning with the wingtips on truss struts attached to the tractor and trailer, while the tail section of the aircraft relied on a four-wheeled bogie. But this proposal of W. von Braun was also rejected.

Characteristics of the second version of the interceptor: wingspan - 8.6 m, aircraft length - 9.3 m, height - 3.2 m, takeoff weight - 5080 kg, horizontal field speed

ta — 690 km/h, rate of climb — 143 m/s, service ceiling — 8000 m, flight time — 15 minutes.

In the middle of 1944, von Braun proposed to the Luftwaffe command as part of an “emergency” fighter program (high-speed high-altitude fighter) and a program for the development of an object interceptor, a project for a supersonic rocket aircraft. The aircraft under the designation Ab, 15.75 m long, had a swept wing with a wingspan of 6.33 m, the pilot was located in a pressurized cabin in the forward fuselage. In the tail section of the fuselage there was a combined power plant consisting of a liquid-propellant rocket engine with a thrust of about 12,000 kg and a ramjet engine, liquid oxygen was supposed to be the oxidizer, and methanol as fuel. The estimated maximum speed of the aircraft was 2900 km/h.

The plane took off vertically, like a rocket. After the liquid-propellant rocket engine was switched off, the ramjet engine began to work, and the machine carried out a horizontal flight for 15-20 minutes. Landing was carried out on the runway with the help of a wheeled landing gear. To reduce the landing distance, a braking parachute was provided in the rear fuselage. The range of the aircraft was about 800 km, the flight altitude was up to 95 km. The project was not accepted for implementation.

Interceptors 3. Bahema

In 1940, the technical director of Fieseler, Erich Bachem, developed his own project of a vertically launched interceptor Ei 166 in 1940, similar to the design of von Braun, in two versions. The first option (Nosepjaveg 1) was a combination of a rocket with a rocket engine and a full-seat interceptor aircraft with two Lito 004 turbojet engines installed in the wing, the so-called “horse and rider” system. With the help of a rocket, the plane climbed to a height of about 12,000 m, then the rocket was dropped, and the plane switched to the

horizontal flight. The dropped rocket was parachuted to the ground, after which it could be reused. The interceptor landed on the ventral ski. The armament consisted of two cannons placed in the wing roots. Characteristics: take-off weight of the system - 10,000 kg, flight weight of the aircraft - 5620 kg, maximum speed - 830 km/h, flight duration - 45 minutes.

The second variant (Nozhepzhaveg P) was a two-seat aircraft with an LRE located in the rear fuselage, the landing of the machine was carried out in a gliding mode on the ventral ski. Characteristics: take-off weight — 13,500 kg, maximum speed — 830 km/h, flight duration — 45 minutes.

In the summer of 1944, a decision was made to start production of the object mini-missile interceptor proposed by E. Bachem under the designation Ba 349 “Ma(-er” (“Viper”). nickname with unguided missiles, and after using

all missiles to ram. Immediately before the collision, the interceptor pilot had to have time to eject, at the same time, with the help of explosive bolts, the tail section of the fuselage was disconnected from the rocket engine and landed on a parachute. The surviving propulsion system was to be reused.

The design of the Ba 349 was mainly made of wood, the straight wing had no mechanization, and the aircraft was controlled using control surfaces located on the cruciform tail unit. The forward part of the fuselage housed the pilot's cockpit, and under the drop-off plastic nose cone there was a honeycomb battery of unguided rockets (24 H$ 217 rockets of 73 mm caliber or 34 KAM rockets of 55 mm caliber). To protect the pilot in flight, it was planned to armor the cockpit - the installation of a front armor plate behind the missile battery, and a rear armored partition behind the seat.

The cockpit contained: control panel, pilot's seat, rudder pedals, fire control pedal, aircraft control stick, Patin autopilot, oxygen equipment and radio control equipment. Aiming during the attack was carried out with the help of a frame located in front of the cockpit between the fairing and the windshield. The windshield had a thickness of 60 mm;

In the middle part of the fuselage there was a wing and two fuel tanks - the lower one for S-Moy for 190 l and the upper one for T-Zoy for 440 l, in the tail section there were empennage, liquid propellant rocket engine ÿÿÿ 509ÿ-1, attachment points for four starting accelerators "Schmidding 533" and a container with a parachute.

The takeoff of the aircraft from the launcher was carried out with the simultaneous operation of the launch boosters and the LRE, set to the idle mode. The LRE thrust limit was made to limit the starting g-force to 2.5 2. It was believed that even with this overload, the pilot could not manage to control, so the rudders were blocked before launch in a predetermined position, which ensured the safe departure of the aircraft from the launch guides. installation. At an altitude of 170–200 m, the boosters were dropped, the LRE was brought to full thrust, and the autopilot was switched on, controlled by radio from the ground. After reducing the overload at an altitude of about 1200 m, the pilot had to switch to manual control. After completing the combat mission, the pilot had to leave the aircraft.

During the development of the aircraft, it turned out that the cockpit was too small to accommodate the ejection seat, and the design of the seat itself had not yet been worked out. For this reason, the pilot's concept of leaving the aircraft was changed: now he had to unfasten his seat belts, disconnect the aircraft control stick, tilt the canopy and drop the forward fuselage. The bow was separated along with the windshield, front bulkhead and control panel. The deploying drag parachute in the tail section seemed to shake the pilot out of his seat forward, after which the tail section was fired from the middle part of the fuselage. After separation, the pilot and the tail section, together with the propulsion system, each landed on their own parachute.

The first prototype Ba 349 was intended for

towing flight tests and had a tricycle wheeled landing gear. It was first launched into the air without a pilot in November 1944 in tow behind a He 111 aircraft. The tests ended in failure - the aircraft did not leave the guides of the launcher due to the fact that the launch accelerators burned out in the places of the ignition wiring. The first successful unmanned launch took place on December 22, after which another 10 unmanned vehicles successfully launched. But the test results in the design of Ba 349.16, which became the prototype of the A-series machines, made a number of changes. At the same time, the ministry decided to stop parallel work on the Heinkel interceptor Ne R.1077 "ÿiÿa", which were at the stage of building a prototype.

On February 25, 1945, the first full launch of the Ba 349A took place with a rocket engine and a dummy in the cockpit. The flight was successful, after which KEM demanded to speed up the tests and move on to manned flights. On February 28, test pilot Lieutenant Lothar Siebert took off for the first time on the Ba 349A. The plane took off successfully, but during the climb, the cockpit canopy spontaneously opened, concussing the pilot. The car, gaining a height of about 1500 m, dived and exploded when it hit the ground, the pilot died.

Despite the catastrophe that occurred during the first manned flight, the tests continued, having performed 34 launches until April 1945, including 7 manned ones. After testing on the aircraft, the tail section of the fuselage was redesigned for the new two-chamber NUK 509S liquid-propellant rocket engine, the hardpoints of the launch boosters were moved closer to the tail, the height of the fuselage was slightly increased to accommodate two MK 108 guns. 349A 50 experienced machine

mi, immediately launching the Ba 349V into mass production (the first batch of machines was to have the designation Ba 3498-1).

A total of 36 aircraft were built before the end of the war, among them three experimental Ba 349Vs, one of which flew. None of the built Ba 349 aircraft had time to take part in the hostilities, although 10 aircraft were placed at Kirheim at starting positions to: repel allied air raids. Almost all of them, along with launchers, were destroyed by special SS teams during the retreat, but four vehicles were captured by allied forces - three American and one Soviet. At the very end of the war, the technical documentation for the Ba 349 was acquired by the Japanese, but not a single vehicle was ever built. Currently, one copy of the Ba 349 is in the museums of the USA and Germany.

Aircraft characteristics

Characteristics Ba 349A Ba 349B Wingspan, m | | 47 | E 4.0 _| 4.0 E—__ Wing area, m2. 4.7 Aircraft length, m | 6.0 6.0. | Height, m 2.5 | 2.5 Empty weight, kg | 800 E 880 | Take-off weight, to about __|__ No. 0 | 2234 Maximum speed, km/h | 900 E 990 | Rate of climb, m/s | Go 183 190 LRE operating time, min. 2.23 | 4.36 |

"Flying Wings" by the Horten brothers

In March 1943, among other projects, two flying wings project. These were

projects of the H 1X aircraft of the brothers Raymar and Walter Horten and Em "1000-1000-1000" of the Focke-Wulf company. The project of the Horten brothers won the competition for proposals, and the positive feedback from Prof. L. Prandtl, director of the Institute of Hydroaerodynamics (AMA) in Göttingen, played an important role. The design of the H IX aircraft received the working designation 8-229 at KIM.

H IX was made according to the scheme of the classical "flying wing". There was no vertical tail, two pairs of elevons, an inner pair of landing flaps and steering air brakes were used as controls. The thickness of the center section was sufficient to accommodate the pilot and engines in it. The “beaver tail” housed the braking parachute compartment. The wingspan was 16.8 m. The center section of the aircraft was welded from steel pipes, the wing consoles were made of wood, and the skin was made of plywood. In the future, in serial production, it was planned to replace the plywood sheathing with a combined one, which was a three-layer composition: two outer layers of plywood 1.5 mm thick and an inner layer 12 mm thick from a mixture of sawdust and charcoal powder impregnated with glue. The addition of charcoal was intended to make the aircraft "invisible" on the radar screens. The landing gear of the aircraft was made of three struts, the nose wheel retracted back, the main ones - to the line of symmetry. Each console housed 4 soft sealed fuel tanks with a capacity of 3000 liters. It was possible to suspend two bombs weighing 1000 kg each or two fuel tanks with a capacity of 1250 liters each under the center section. The armament of the aircraft was developed in two versions: four guns or two guns and two cameras.

An analysis of the design features of the H IX shows that the Germans developed the world's first "stealth" aircraft designed for covert penetration to the target. They were the first in the world to apply the concept

"OpsisBag" ("invisibility"), the purpose of which was to reduce the radar (RL) and infrared (IR) visibility of the aircraft. Radar visibility was reduced by applying such technical methods as: choosing the “flying wing” scheme, the location of the engines inside the center section, the recessed location of the air intakes, and the use of a skin made of radio-absorbing materials. The reduction of the IR visibility of H IX was carried out by shielding the jets flowing from the engines with the “beaver tail” of the center section, as well as by using a jet cooling system.

KIM, in accordance with a special fighter program, in July 1944 issued contracts for the construction of 20 series A machines to the Klemm and Gotha firms. Soon, the Klemm contract, due to its workload on the Me 163B fighter, was transferred to Gotha. October 13, 1944

Representatives of Gota and the team of the Horten brothers, after examining a full-size wooden mock-up, decided to start serial production of the aircraft. Production aircraft assembly
By

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which received the designation No 229, was planned at the Gotha factory in Friedrichsrode.

For the first time, the H IX aircraft, equipped with two Lito 0048 turbojet engines, took off on December 18, 1944. In the fourth test flight in February 1945, the aircraft reached a speed of 795 km/h, but crashed during landing approach due to malfunctions in the control system, the pilot died. However, despite the failure with the second experimental machine, the production of the No 229 aircraft at Gotha was in full swing. The No 229U3 (N ÿÿÿÿ) was supposed to be the prototype of a single-seat serial fighter-bomber, the No 229U6 (N TKHUB) was to be the prototype of a two-seat night fighter and training aircraft. On April 14, 1945, the advancing units of the US Army seized the plant in Friedrichsrod and found one fully assembled and three unfinished prototype No 229 machines and prepared components and assemblies for another 20 machines. The Americans dismantled the assembled car and transported it to the USA for study by aviation specialists. At present H IX (Ho 229) is in the collection of the Smithsonian Institution (USA).

Characteristics No 22973 (ÿ ÿÿÿÿ): wingspan with a sweep of 32.2 ° - 16.8 m and its area - 50.8 m2, aircraft length - 7.45 m, height - 2.8 m, empty weight - 4600 kg, take-off weight - 7515 kg, reload weight - 9000 kg, maximum speed - 945 km/h, cruising speed at 2/3 thrust at an altitude of 10,000 m - 685 km/h, rate of climb - 22 m/s, service ceiling - 16,000 m, flight range: at a speed of 630 km / h - 1880 km, with drop tanks - 3150 km.

The Hortens also developed a project for a supersonic fighter N XSh with a Ne$ 011 turbojet engine. When developing this aircraft, they departed from their traditional “flying wing” scheme and turned to the “tailless” scheme. The aircraft had a swept wing and keel. Wednesday

Vacheslov Kozyrev, Mikhail Kozyrev

her part of the keel was the cockpit. The engine was installed under the fuselage. Suspension units for additional rocket boosters were not envisaged, and three cannons were installed as armament in the forward fuselage.

According to the idea of R. Horten, the pilot had to be placed in a special capsule filled with water in order to withstand overloads during flights at supersonic speeds. In January 1945, the construction of a prototype aircraft began, which was originally to be tested without an engine. In addition, aerodynamic tests of free-flying models were carried out in Hornberg. The almost completed experimental aircraft was destroyed by the allied forces in the spring of 1945.

Characteristics: wingspan with a sweep of 70 ° - 7.2 m; ceiling - 15,000 m.

At the end of 1944, the Hortens began to work on the project of the long-range bomber H KhUSH of the “flying wing” type. Of the ten initial versions, the final version of the project was chosen, which was presented on February 25 to the expert commission of the ministry. Car

Layout H IX H XIII

in many ways resembled the H IX aircraft, but was larger. As a power plant, it was supposed to use six Lito 0048 turbojet engines located in the center section, the engine air intakes were located in the leading edge of the wing. The power frame of the aircraft was supposed to be made of steel pipes, and the skin was made of plywood with an intermediate layer of coal powder and a binding adhesive. This was supposed to make the bomber invisible on the radar screens. To achieve the maximum range, the designers abandoned the classic landing gear: the take-off was to be carried out with the help of a resettable launch cart and launch boosters. As weapons, four guns were supposed - two in the bow of the center section and two, controlled remotely, behind the cockpit. The bombs were to be placed in the center section compartment.

After reviewing the Hortenov project, the expert commission recommended installing a large wing keel at the rear of the center section, engines in two engine nacelles (three turbojet engines each) under the center section and a three-post retractable landing gear. In fact, the recommendations of the commission were reduced to the transition from the “flying wing” to the “tailless” scheme. A modified version (tailless bomber) under the designation H HUSHA was recommended for construction. However, R. Horten, dissatisfied with the decision of the commission and trying to save his “proprietary” scheme of a pure “flying wing”, very quickly made improvements to his original project and again submitted it to the commission under the designation H HUSHV.

The essence of the improvements was the installation of two non-retractable landing gear under the center section with four wheels arranged one behind the other in each. To reduce drag after takeoff, the wheels had to be closed with streamlined flaps. Two Nez 011 engines were mounted on both sides of the struts. In this case, the landing gear struts acted as pylons

engines and keels, which corresponded to the recommendations of the expert commission. On March 12, 1945, the Hortens were given a contract for the construction of the H HUShV bomber, the prototype of which was to be ready by the autumn of 1945. The construction of a prototype began at one of the underground factories near Weimar, but was not completed until the end of the war.

Characteristics of N HUSH: crew - 3 people, wingspan with a sweep of 24.3 ° - 40.0 m and its area - 150 m?, empty weight - 11,000 kg, maximum weight - 32,000 kg, fuel weight - 16,000 kg , maximum speed — 820 km/h, cruising speed — 750 km/h, takeoff speed — 192 km/h, landing speed — 136 km/h, flight range — 6000 km, bomb load — 3500 kg.

"Flying wings" of other companies

In January 1945, the Gotha firm proposed to CEM the design of the Co P.60 aircraft, which in many ways resembled the “flying wing” H 1X of the Horten brothers. The main advantage of the So P.60 design was the ability to install any type of turbojet engine without reworking the entire aircraft, which was essential for the agonizing German aviation industry. Project So R.60 was developed in three variants. The aircraft was equipped with two turbojet engines located one above the other in the rear of the center section. On the wingtips of the two-seater machines of options A and B, a pair of non-bolny vertical control surfaces were installed above and below; in the three-seater machine of option C, vertical surfaces were installed only above the wing. Armament consisted of four cannons in the center section. On the center section, suspension units for launch boosters were provided. Characteristics of the two-seat fighter So R.60B: engines Ne5 011, wingspan - 13.5 m and its area - 54.6 m?, aircraft length - 9.9 m, take-off

Handmade UFO

weight - 10,000 kg, maximum speed at an altitude of 1145 m - 1005 km / h, landing speed - 153 km / h.

In mid-December 1943, Arado began work on a series of “flying wings” projects under the direction of V. Laute. At the beginning of 1944, a discussion of the results of the work took place at KIM, after which the ministry connected the Arado to the work on the long-range jet bomber program. The project received the designation Ag E.555, the company developed 15 variants of the new machine at once, seven of which were “flying wings”. So, for example, Ag E.555-1 was a structure made of steel and aluminum alloys, was carried out according to the “flying wing” scheme and had six VMM 003A turbojet engines. The outer parts of the wing were. slightly bent down, two vertical keels with rudders were located on top. The glazed pressurized cabin, which housed a crew of three, protruded forward from the center section, the engines were installed above the center section in its rear part. The bomb load was placed in a compartment located in the center section. Each of the two main landing gear had two pairs of wheels in tandem, which retracted into the wing, the front two-wheeled strut was retracted

Ag E.555-1

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Beachestase Kazyrÿÿ, Mihsig Kozyrÿÿ

back. During takeoff in the reloading version, an additional landing gear was used, which was dropped after takeoff. The armament of the aircraft consisted of two cannons on the sides of the cockpit for firing forward, a two-gun turret behind the cockpit, and a remote-controlled two-gun turret at the rear of the center section. Due to the current situation on the fronts, on December 28, 1944, Arado was ordered to stop work on the E.555 series and concentrate all its efforts on the development and production of fighters.

The project of the bomber "Sigabotbet" P of the company VMY, made according to the "flying wing" scheme, participated in the competition as part of the program for the creation of a long-range jet bomber. It was supposed to install two VMM 018 turbojet engines with a common air intake. The crew consisted of three people, and the scorer was located lying in the ventral armored fairing. In the tail part of the center section there was a remotely controlled navigator installation with two guns. |

At the end of the war, Junkers also worked on a "flying wing". It was a project of a long-range jet bomber ÿi EP 130 with four VMM 003 engines mounted above the rear part of the center section. The entire structure was metal except for the wooden outer sections of the wing. A glazed cockpit for two or three people occupied the entire forward fuselage.

hypersonic bomber

At the end of the war, the German scientist E. Senger developed the concept of a single-seat hypersonic missile bomber capable of taking off from German territory and delivering a bomb load weighing several tons to the target.

The bomber was supposed to have a trapezoidal

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Yuuksacreative NGOs

a small aspect ratio wing carrying a fuselage with a spaced tail assembly and a liquid propellant rocket engine in the rear fuselage. The pressurized pilot's cabin was located in the forward part of the fuselage, but the view from the cockpit was very poor, because instead of glazing, it was planned to install viewing side slits and auxiliary optical devices. Behind the cockpit in the fuselage there were two cylindrical tanks 20.5 m long and with a maximum diameter of 1.8 m, separated by sealed transverse partitions. The compartments formed by the partitions were used to store the oxidizer and fuel. The front compartments contained the oxidizer (liquid oxygen), while the middle and rear compartments contained the fuel (synthetic gas oil). In the center section between the tanks there was a bomb bay with a capacity of up to 30 tons of load. For landing, a landing gear was provided, which included a nose wheel strut, two main wheel struts and a tail strut-crutch.

The horizontal takeoff of the bomber was to be carried out using a special launch cart. The launch cart was a long platform with its own rocket engine in the rear, a bomber was installed on the platform in front. In the lower part of the platform there were skids, which, during acceleration, slid along a monorail more than three kilometers long.

E. Zenger calculated various options for the trajectories and flight modes of the bomber, below is one of these options - a bombing attack on New York from the territory of Germany (estimated distance from the launch site - 6500 km, launch weight - 100 tons, bomb load - 6 t).

The plane takes off with the help of the launch cart, which gives it an initial speed of 500 m/s. The rocket engine of the aircraft is switched on 36 s after the launch at a distance of 12 km from

VA in 84 tons is fully developed in 336 s. At this moment, the aircraft speed should be 6370 m/s, altitude - 91 km, distance from the launch site - 736 km, and the flight weight of the aircraft - 16 tons.

Here the pilot had to take control and carry out further flight in the “dynamic” gliding mode, which was an alternation of dives into the dense layers of the atmosphere, followed by jumping into the rarefied layers. The “dynamic” gliding mode made it possible to achieve a greater flight range compared to conventional flat gliding. At a distance of 5550 km from the start and 950 km from the target (at 1150 from the flight), the speed will drop to 6000 m/s, and the flight altitude will drop to 50 km. At this moment, the bombs are dropped, after which the flight weight of the aircraft becomes equal to 10 tons.

Immediately after the bombs are dropped, the aircraft makes a U-turn with a radius of 500 km within 330 s and heads to the launch point. The speed after exiting the turn is 3700 m/s, and the altitude is 38 km. Then the plane glides gently at supersonic speed to the launch site. At a distance of 100 km from the landing site, the speed is 300 m/s, and the altitude is 20 km, subsequent gliding at subsonic speed and landing are carried out as in a conventional aircraft. The entire flight lasts 1 hour 32 minutes.

In addition to such a typical flight, E. Zenger also calculated other types of flights, including a flight with a subsequent landing at a strong point located on the territory of a country friendly to Germany, as well as a flight with the loss of a bomber after bombing. In the latter case, the bombing had to be carried out in a dive mode from a height of less than one kilometer; immediately after the bombing, the pilot had to bring the bomber into climb and have time to eject. It was assumed that after landing at a distance of several kilometers from the place where the bombs fell, the pilot would have to be taken prisoner.

Model A$6 Disc model test (from German report)

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Materials on disk AS 5 models from the German report

jet discoplane

Vachespas in Kazlirva, Mikhail Kazyreÿ Discoplanes

During the war in Germany, work was underway to create aircraft with a round wing in terms of the so-called diskoplanes. In June 1939, at the German Free-flying Model Aircraft Championship, an AS 1 diskoplane designed by Artur Zak was demonstrated in flight. General E. Udet, who at that time headed the aviation technical service of the German Ministry of Aviation, liked the diskoplane model. He recommended the designer to continue work in this direction, providing all kinds of support. After that, A. Zak developed four more flying models of diskoplanes, the last of which, A $ 5, had a wingspan of 1.5 m and a length of 1.25 m. According to data, Professor Lippish advised Zach during the construction of his aircraft.

The diskoplane A$ 6 was built at the beginning of 1944 in the workshops of the air base Brandis. It was an aircraft with a round wing and a conventional tail mounted on the trailing edge. The Argus Az 10S-3 engine with a power of 240 hp was located in front, which set the pulling screw in rotation, the ailerons were located at the rear of the device, and the take-off and landing flap was located in the middle of the fuselage. The chassis was three-post: two main non-retractable wheel racks and a rear crutch. The design of the discoplane was made entirely of wood, and the cockpit canopy, the pilot's seat and the main landing gear were taken from the BE 1098 aircraft. The wing had a diameter of 6.4 m, the discoplane weighed 750–800 kg. Testing of the diskoplane began in April 1944 at the Brandis Air Base, and in autumn the aircraft was tested at the Neubiderg airfield near Munich. In the winter of 1944-1945 AZ 6 burned down during one of the allied bomber raids.

known to have existed at least as far back as

in

Yuukatvarnchy UFO

one diskoplan with engines located inside the fuselage behind the cockpit, which, through elongated shafts, drove contra-rotating pusher propellers. The propellers were installed in cutouts in the rear of the round wing. As authorities

control, two small keels with rudders, ailerons and elevators on the trailing edge of the disk were used.

One of the developed jet diskoplanes had a shortened radial turbojet engine vertically located in the center of the hull; such an engine was, in particular, created at the Heinkel company. To ensure centering, the cockpit was located above the engine axis. Part of the air from the air intake channel was supplied to the engine, the combustion products, having passed through the exhaust channels, mixed with the ejected cold air in the main channel and were thrown out of the flat jet nozzle. Side jet rudders were designed for directional control, and the outlet sections of the jet nozzle deflected up or down served as elevators.

VTOL aircraft

By the end of the war in Germany, due to the constant bombing by Allied bombers, the lack of runways for the normal functioning of aviation began to affect. Under these conditions, KIM specialists turned to the idea of creating airplanes and helicopters capable of operating from sites dispersed in forests or mountains. Vertical take-off and landing aircraft included devices developed by the Wesserflug, Focke-Achgelis, Focke-Wulf and Heinkel firms.

Such work was begun even before the war. In 1938, at the Wesserflug company, under the guidance of the designer Simon, the development of a verti

take-off and landing according to the project \R.1003. OV 600 was used as an engine, which drove two propellers with a diameter of 4 m, mounted on the rotary end parts of the wing. During take-off, the rotary parts of the wing were turned with the propellers upwards, after installing them in their usual position, the aircraft switched to level flight. However, at that time the project did not go into series, because. at the beginning of the war, the Luftwaffe had an overwhelming advantage over the enemy on all fronts.

An interesting fact - in the Soviet Union, work on the study of the aerodynamics of the tiltrotor was carried out in 1935-1936. under the guidance of Professor B.N. Yuryeva. In 1936, MAI student Kurochkin defended his thesis project for a twin-rotor VTOL fighter with a rotary wing. The fighter, named "Falcon", had the following design characteristics: wingspan - 5.8 m and its area - 9.28 m?, aircraft length - 7.55 m, propeller diameters - 4 m, take-off weight - 1850 kg, engine power "Hispano-Suiza" 12 JVEZ - 860 hp.

In 1943, G. Focke, the founder of the Focke-Wulf and Focke-Ahgelis companies, the creator of helicopters (Ra 224, Ra 226, etc.) and gyroplanes (Ra 225 and GA 330), developed a project for the tiltrotor aircraft Ra 269. On each wing console of the aircraft there was an OB 601 or OB 605 engine, which rotated a large-diameter pusher propeller by means of a long shaft. During takeoff and landing, the shaft turned vertically down; during horizontal flight, the shaft folded into a wing against the direction of flight. The long main landing gear folded forward into the nose of the fuselage, the rear landing gear into the tail section. The Ra 269 project remained unrealized.

In September 1944, at the Focke-Wulf company, designer H. von Halen designed a vertical take-off and landing interceptor aircraft, the so-called Ru “Tpeÿÿiveÿ. Feature of this aircraft

Yuukotvarchy K/O

was a three-bladed rotor rotating around the fuselage, at the end of each blade was installed a ramjet designed by Otto Pabst, who worked in the gas-dynamic department of the Focke-Wulf company. The engine, developed back in 1941, had a diameter of 0.69 m, a length of 1.72 m, developed a thrust of 839 kg and could run on non-deficient types of fuel, including coal dust, which was important for a collapsing economy. German Research Institute.

The aircraft stood vertically on the ground on a landing gear consisting of a main center wheel in the rear fuselage and four additional struts with small wheels mounted on a cruciform tail unit. In flight additional racks

7539

TgÿeBPiveÿ Convertiplane fighter "Falcon"

823

Vachestasve Kozyrev, Mihsil Kozyrev

"Mesre" "Gegeghe" P

folded back, resembling a tulip bud. The cockpit was located in the forward part of the fuselage, the pilot was lying down in it, while two 30 mm caliber guns or two 20 mm machine guns were mounted in the forward part. Takeoff was carried out as follows. The rotor was spun with the help of a starting engine installed inside the fuselage, or with the help of launch accelerators fixed under each of the engines, to create lift during takeoff, the blades were set at a certain angle. After reaching a certain value of velocity head, sufficient to ensure stable operation, the ramjet was switched on. When entering the level flight mode, the angle of installation of the blades decreased, the control of the aircraft in flight was carried out by the tail rudders. Transitional flight modes presented a great difficulty for the pilot, especially when landing, which had to be carried out with the tail forward. The end of the war interrupted the work on the “Gpebÿiveÿ” theme.

The Heinkel VTOL interceptor Ne “Uezre” (“Wasp”) with an annular wing around the fuselage in the middle part was developed in 1944. The wing was attached to the fuselage using three pylons. A turboprop engine OV RTI was installed in the rear part of the ring-wing fuselage. 021 or

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Armature UFOs

Nev 021, which rotated a six-bladed propeller located inside the wing. The inlet of the engine air intake was located in the forward part of the fuselage. The pilot was seated in the cockpit during level flight, so during takeoff and landing he was lying on his back. Two 30 mm caliber guns were installed on the sides of the cabin. The chassis was made three-column and was located at the ends of the three-keel tail unit. The aircraft took off vertically, then lowered its nose and switched to horizontal flight. In level flight, additional lift (in addition to the annular wing) was created by the bent tips of the two pylons. The most difficult was the landing mode, it was carried out after the exit from the dive, when the tail of the aircraft turned out to be lowered down.

Another project of the Heinkel vertical takeoff and landing interceptor Ne "ÿerzhe" P ("Lark") was started by Heinkel on February 25, 1945, and completed on May 8 of the same year. It was similar to the previous project, however, two OB 6050 engines were used as a power plant, which set in motion two three-bladed counter-rotating coaxial propellers.

The pilot in level flight in the cockpit was lying down. Two guns were installed on the sides of the cabin.

Model "Tpezige!" "Ringplane"

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vachestens Kozyrev, Mikhail Kozyrev

It should be noted that the annular wing aircraft was first developed in the USSR. In 1936, student MAY M.V. Sukhanov defended his thesis project for an aircraft with an annular wing 3 m in diameter and an estimated maximum speed of 600 km/h. Based on the graduation project of M.V. Sukhanov developed a project for an annular wing interceptor. In the prewar year, this project was reported to the Air Force command and considered at the scientific and technical council of TsAGI. With the beginning of the war in Novosibirsk, a group was formed that was engaged in the design of the Koltseplan aircraft. In 1942 M.V. Sukhanov received a patent for the invention of a short takeoff and landing aircraft with an annular wing.

Characteristics of the "Koltseplan": wing diameter - 3 m and its bearing area - 10.5 m? altitude 3000 m - 640 km / h. :

Disc-like apparatus

In 1939, G. Focke developed a hybrid design that combined the qualities of both an airplane and a helicopter. The device was a diskoplane with a triangular tail part of the hull, on the trailing edge there were ailerons, flaps and a keel with a rudder. Two coaxial two-blade propellers of opposite rotation were installed inside the case, driven by a turbojet engine. The transmission of rotation to the screws was carried out through an elongated shaft and a gearbox. The output nozzle of the engine was connected by two channels with two additional combustion chambers (prototypes of afterburners), combustion products were thrown out through the exhaust nozzles of the chambers. On the lower surface of the hull there were opening doors, the cockpit was

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Handmade UFOs

4 4. Discoplane G. Focke "Oteva rÿÿKÿÿ"

It was located in the nose, the tricycle landing gear was retracted into the hull after takeoff.

The takeoff was carried out with open doors due to the rotation of the propellers (like a helicopter), by supplying fuel to additional combustion chambers, an increase in the horizontal flight speed was achieved, while the doors on the lower surface were closed. Track control at low speeds was carried out by a differentiated supply of fuel to additional combustion chambers.

The disk-helicopter was the Otera Yusky, developed at the end of the war by designer Andreas Epp. It was supposed to be used as an attack aircraft. The device had a body in the form of a disk 19 m in diameter, in the center of which there was a round cockpit with a diameter of 4 m. On the axis of the disk, above the body, there was a two-bladed rotor 22 m in diameter with two ramjet engines at the tips of the blades. The rotor was rigidly attached to the axis, like the rotors of gyroplanes. Beyond the basics

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The apparatus had eight additional Az ZA engines with a power of 80 hp each in the body. with four-bladed propellers, with each engine installed in a vertical channel with a diameter of 3 m.

The device worked as follows. The initial spin-up of the main rotor was carried out with the help of launch rocket boosters suspended under the ramjet, and the A5 8A engines were simultaneously launched. When the rotor speed reached 220 rpm, the ramjet was switched on, and the boosters were dropped. The pilot, increasing the thrust of the rotor by changing the pitch of its blades, took off. By changing the thrust of individual additional engines, it was possible to tilt the car in the desired direction and carry out horizontal flight. In the event of failure of one of the additional engines, the machine retained sufficient control to complete the flight. When one stops

the fuel supply to the second ramjet was cut off, and the pilot landed the car in autorotation mode. At low altitude, the car flew using the additional effect of an air cushion. Several models of the 1:10 scale helicopter were tested in wind tunnels and flight tests, and before the end of the war, four prototypes of Oteva RazKio were built. The control system implemented in this project was patented after the war in Germany.

The creation of the most exotic apparatuses, following R. Luzar, was associated with the names of Schriver, Mite, Habermol, Schauberger, and Belluzzo.

Flygkapitan Rudolf Schriever had been a test pilot for the Heinkel firm in Marienech near Rostock on the Baltic coast since 1940. In parallel with the test work, he was also engaged in the development of aircraft. In the spring of 1941, Schriver designed his first Model M! ("\" meant "Megzis" - "experienced"). It was a vertical take-off and landing apparatus, which the company called the "flying cover". The device had a diameter of no more than one meter; an electric motor or a piston engine was used as an engine. By June 1942, Schriver's model was already flying, the results were considered interesting enough to warrant funding from KIM. The construction of a full-sized version of the \2 apparatus began in early 1943.
The M2 apparatus, which was known as the "Eekre1se]" or "flying wheel", had a diameter of about 7.5 m, one or two jet engines were used as a power plant. "Heinkel-Hirth". It is possible that Schriver himself conducted flight tests, but due to problems with the engines, the design of the apparatus was soon revised. Shriver and his team are then transferred to Czechoslovakia, where they set about building a large and generally more complex prototype of the US. Despite the fact that Heinkel produced its own jet engines, work on the "flying wheel" was carried out at an enterprise owned by VMU (Bayersky Moygepme Zhe) located near Prague.

The following testified to the potential of the VMMU firm during the war. The company had a main design office and a central experimental station at the company's leading aircraft engine plant in Munich, where a high-altitude laboratory for testing jet engines was also located. The second design bureau, located first in Berlin (Spandau), and then in 1944 evacuated to Stassfurt, had a design department, an engine testing department

(including reactive ones), instrument testing laboratory, pilot production, flight test department. The total number of employees of departments and laboratories was 1700 people. In addition, there was also a design bureau on the basis of the experimental design plant (Unzenburg), located underground in old salt mines. 22,400 people worked at the aircraft manufacturing plants of the company and their branches, the total area of production areas was 96,000 m2.

By the fall of 1944, US tests were over. The relevance of the work has increased even more, because. due to constant allied bombardment, most of the runways of German airfields were destroyed. In this regard, the Luftwaffe urgently needed vertical takeoff and landing aircraft. However, due to an administrative change, the UZ program was abandoned in favor of the development of the M7 attack aircraft with a different type of engine.

Engineer Klaus Habermohl joined the Schriver group from VMU. In Prague, he was supposed to develop a new power plant for the M7, the so-called. centrifugal

turbojet engine. In contrast to a conventional (axial) turbojet engine, in which all its elements are arranged in series one after another (compressor, combustion chambers, turbine, jet nozzle), in a centrifugal engine, the compressor rotates directly around the cockpit mounted on the apparatus axis. That is why the apparatus could have only one shape into which such an engine fit - the shape of a disk or plate.

The ÿ7 apparatus, designed for a crew of 2–3 people, had a round body with a diameter of 18–21 m with a glazed cabin at the top, a multi-bladed rotor rotated around the body. The rotor was driven by a ramjet mounted on its outer rim. The spacecraft was taken off by initially spinning up the rotor using a ground launcher or launch boosters suspended under the ramjet. Upon reaching a certain number of revolutions, the main engines came into operation, and the starting device was turned off or the starting accelerators were reset. Fuel was supplied to the main engines due to the action of centrifugal forces. The magnitude of the lifting force was regulated by changing the angle of installation of the rotor blades, horizontal flight was carried out using two (in another version, three) turbojet engines installed at the bottom of the apparatus. In level flight, the blades were set to zero angle, directional control was carried out by differentiating the thrust of the turbojet engine or

deviation

their exhaust nozzles. The designers came to the final layout only after unsuccessful tests of 15 previous options. The prototype of the last version of the apparatus took off on February 14 (according to some sources, January 14), 1945 near Prague.

The most mysterious were the devices developed according to the Naspebi and MSH projects; legends arose among ufologists about the use of electromagnetic and antigravity engines as power plants for these devices, information about which the Germans allegedly received from extraterrestrial civilizations. However, everything was much more prosaic — the devices of the Naipebi and Ug projects can be attributed to disk helicopters (analogues of the Focke diskoplane) with a rotor located inside the body of the device, creating a downward air flow.

This program was transferred to Breslau from the secret institute at Peenemünde. The project was headed by design engineer Richard Mite, one of the V-2 developers. Very little biographical information has been preserved about Mitya, but it is known that he was a close friend of fon

Brown. A little should be said about the joint missile center, where von Braun and Mite worked.

In 1935, the German government bought for 750,000 marks the area near the small fishing village of Peenemünde on the island of Usedom in the Baltic Sea. In 1936 here, in the strictest secrecy, large-scale construction work began. First, a settlement appeared for workers and their families, then the first laboratories, workshops, training grounds, and so on. Peenemünde was not marked on any map. The operation of the center, which received the name NUR (Heere's Megzis'apch'a' Reepetipde), was carried out jointly by the army and the Luftwaffe. Soon, a power plant, a large plant for the production of liquid oxygen, a rocket assembly plant, an institute for materials research, a test aerodrome were built on the territory of the center.

a roaddrome, missile launchers, etc. In the future, it was planned to increase the number of technical personnel of the center to 30,000 people, expand the production of missiles, and establish a direct rail and air connection with Berlin. The entire territory of the center was divided into two zones: the western one, in which the Luftwaffe conducted its research, and the eastern one, which was the zone of responsibility of the army. Test launches of V-1 cruise missiles and V-2 ballistic missiles were carried out in a northeasterly direction from launch sites located on the northern tip of the island. Launches of small experimental rockets were carried out in the direction of a small elongated island of Greifswaller-Oie, located between the island of Usedom and the mainland. In 1939, the main activities of the Peenemünde rocket center were approved in order to develop:

LRE up to 1500 kg for anti-aircraft missiles

and short-range missiles;

LRE up to 25,000 kg for ballistic missiles; missile control and guidance systems;

fuel systems for ballistic missiles; LRE for rocket fighters;

LRE for a short-term increase in the speed of aircraft in flight;

launch boosters for aircraft;

preparation for mass production of missiles.

During the period from 1937 to 1940, more than 550 million marks were invested in the Peenemünde missile center. By 1943, under the leadership of von Braun, the project of the A-9/A-10 intercontinental missile, designed to attack objects in the United States, was ready. The project was given the unofficial name "V-3". However, the events that took place soon forced the German leadership to change
thread plans.

The fact is that back in 1942, Allied intelligence became interested in top-secret German facilities in the Peenemünde area. An operation was developed, the purpose of which was a massive bombardment of a power plant, a plant for the production of liquid oxygen, assembly buildings, etc. To lull the Germans' vigilance, Allied reconnaissance aircraft made regular

flights along the coast from Kiel to Rostock. The German air defense systems were categorically ordered not to open fire on reconnaissance aircraft and not to raise interceptor fighters in order to avoid unmasking the objects in Peenemünde. And late in the evening on August 17, 1943, the allied armada, consisting of almost 600 long-range bombers, flew out on a mission. The Germans took this operation as an intention to bomb Berlin, for this reason, Berlin's air defense was put on full alert. However, unexpectedly for the Germans, the allied armada over the island of Rügen changed course: instead of turning south towards Berlin, the bombers turned southeast. That night, more than 1,500 tons of high-explosive and incendiary bombs were dropped on Peenemünde, and the missile center suffered enormous damage. During the bombing, more than 700 people died, among whom were many specialists, including the chief designer of engines for the V-2 and Mackerga rockets, Dr. Thiel, and the chief engineer, Walter.

Immediately after the raid on Peenemünde, measures were taken to accelerate the construction of the huge underground Mittelwerke plant in the Harz mountains near Nordhausen. This plant was intended for the mass production of aviation turbojet engines and V-1 and V-2 rockets. For work at this plant, the Germans used 30,000 prisoners placed in the Dora concentration camp specially built for this purpose. A test site for missiles was urgently equipped in Poland. In Pena

Münde was left with only the design office and testing laboratories. It was here that Mite's "flying disc" was born. Nevertheless, the SS leadership decided that it was not safe for Mitya to remain at the facility. Thus, the scientist ended up in Breslau, where he was going to create a new design group, which he did soon after. In the summer of 1944, the SS leadership transferred Mite to Prague so that he, together with Schriver, began to develop a new aircraft.

The devices of the “Naÿperi” series in their shape resembled a hat with a high crown. This crown was the inlet of the air intake, the cockpit was also located there. In one version, a turboprop engine was located vertically under the inlet, driving one multi-blade rotor or two counter-rotating coaxial rotors (in one of the models of this version, the BMM 028 engine was used). In another version, instead of a turbojet engine, there was a starting motor for the initial spin-up of the rotor, and the main rotation of the rotor was carried out by means of a ramjet installed on it, while fuel was supplied to the engines due to the action of centrifugal forces.

The exit of an air flow or a mixture of air with combustion products from the body of the apparatus was carried out as follows. In small devices, the jet flowed out through an exhaust nozzle located on the axis of the device, and

created lift. Horizontal flight was carried out due to the deviation of the outlet section of the nozzle from the axis in one direction or another. For large vehicles, the exhaust nozzle, which created lift, was annular. It was formed by a profiled gap between the body of the apparatus and the bottom in the form of a central disk with edges bent downwards. To carry out horizontal flight from below, sustainer turbojet engines were installed on the bottom. The directional control was carried out either by differentiating the thrust of the sustainer turbojet engines, or by deflecting the exhaust nozzles of the engines. Of the projects developed for the Naiperi series, the Naipebi-Sh had the largest dimensions, with a diameter of up to 71 m; it was supposed to be armed with four guns.

kami caliber 110 mm, ten guns caliber 80 mm and six guns caliber 30 mm. According to some reports, when the Soviet troops approached Prague, the development team was transferred to a secret underground facility located in the Gari mountain range.

At the end of 1944, a group of designers led by V. Schumann worked on projects for disk devices "UP"-Javet (the first flight of a prototype took place on February 19, 1945) and one 80 mm cannon, two MK 108 cannons and two MS 17 machine guns.

The class of unmanned vehicles included "Bellunzo disks", which were based on the design described above. These were disc devices with jet engines along the edges. They were intended

for two purposes: strikes against distant ground targets (analogous to long-range artillery) and combat against allied bombers (analogous to anti-aircraft artillery). In both cases, a compartment with a warhead, equipment and a fuel tank was located in the center of the disk; ramjet engines were used as engines.

The disc was launched from a ground launcher as follows. The disk was spun around its axis with the help of a special starting device or with the help of resettable starting accelerators, after reaching a certain number of revolutions, the main ramjet was switched on. The resulting lift force was created both due to the downward thrust of the engines and due to the additional lift force that arose when the engines sucked the boundary layer from the upper surface of the disk. Jet jets from the engines of a disk rotating in flight created the illusion of rapidly running along the edge of the disk and shimmering lights. Fuel in flight was supplied to the engines from the fuel tank due to the action of centrifugal forces. In the first variant of combat use, after running out of fuel, the disk fell to the ground and exploded, i.e. was an analogue of long-range artillery. In the second variant, the disc exploded when approaching the formation of bombers, i.e. the disk worked as an air mine. According to D. Belluzzo, the Germans intended by 1950 to create a similar disk with a diameter of ten meters, capable of carrying an atomic bomb.

One of the varieties of disks, designed to fight the armada of allied bombers, had blades along the edges and resembled a disk cutter. The purpose of this disk was to crash into the combat formation of the bombers and, rotating, shred everything that came across the path. In this case, if the disk itself loses at least one blade (this is more than likely in the event of a collision between two vehicles), the center of gravity of the disk

shifted relative to the axis of rotation, and the device began to throw in the most unexpected direction, which caused panic in the combat formation of the aircraft.

Some versions of the disks were equipped with a system for creating electromagnetic interference for the bombers' radio and navigation equipment. To all appearances, such disks were created under the program “Eeyetbaÿ1” (“Fireball”). In the autumn of 1944, at the Luftwaffe OBE Experimental Test Center (Oberammergau, Bavaria), a number of studies were completed on electrical devices capable of influencing the operation of aircraft engine ignition systems at a maximum distance of 20–30 m by creating powerful electromagnetic fields. At the same time, the Germans were developing devices capable of interfering with navigation devices and

Allied aircraft radar. The radio-controlled vehicle was brought to the allied bombers by a ground operator, after which the vehicle automatically focused on the exhaust from the engines and approached close enough to the aircraft to interfere with their radars. "Eezetraj" was first created at the aircraft factory in Wiener Neustadt (south of Vienna) with the help of the aviation electronics firm EEO (Riesbock Bogschiprzäpfäi ObgrayJepwojen). H. Goering, interested in advancing the development of "wonder weapons", hoped that the principle of "Ezekera" could also be used to produce offensive weapons capable of revolutionizing the airfields of war. As the Soviet troops advanced into Austria, the production of the Peugarsch was transferred from Wiener Neustadt to Derreith's underground facility in the Black Forest (the same area where the crews of the 415th Night Fighter Squadron encountered UFOs). In addition to "Reshetraÿÿ" at one of the enterprises of the huge underground complex in Thuringia, unmanned aerial vehicles "Kivze Sht" ("Ball Lightning") were developed and tested.

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Man-made UFO

The fate of the developers of disk devices with the end of the war was different. Mite is believed to have left Czechoslovakia for the West in early May, seeking contact with people from American technical intelligence. Ultimately, on the recommendation of his old friend von Braun, he ended up at Wrightfill, a leading US Air Force research center, a fact recently confirmed by former US Air Force Deputy Commander Alexander Flaks. At first, Mite worked at the rocket center (the projects in which he took part are still classified), and then he was sent by the Americans to Canada to the Avro company to work with disk devices.

Habermol is believed to have been captured by the Russians at the Letov aircraft factory near Prague, his subsequent fate is unknown. There is also practically nothing about the post-war fate of Belluzzo.
unknown.

Shriver ended up in the American zone of occupation. After long and thorough interrogations in the special services, he was released, after which he got a job as a courier for the American army newspaper The Stars and Stripes Banner. There he worked as a chauffeur and delivered newspapers to American bases in Germany. There is speculation that Schriever may have played the role of a liaison in an underground SS network that organized the removal of people suspected of war crimes from Germany. He died at the end of the 50s in Bremenhaven. No written records of his activities during the war period remain, except for a few controversial newspaper interviews. In one of them, in particular, he claimed that the “flying saucers” in the photographs of the 50s are very reminiscent of the developments that he and R. Mite did during the war.

Little more is known about Schauberger. Victor Schauberger was born on June 30, 1885 in a family of hereditary Austrian rangers. According to family tradition, he also became a huntsman, his duties included guarding the forests in

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Vachesptav Kozyrev, Mikhasht Kozyrev

around Steyrling, which occupied 21,000 hectares. Being self-taught, he eventually came to a completely new philosophical concept, the essence of which was that water is a living organism and has internal energy. Once, having received an order from a local sawmill, Schauberger designed and built a device for rafting logs in accordance with his concept, for the first time applying vortex technology in practice. The principle of operation of the device was based on the use of water energy. He even managed to patent his discovery. In 1934, Schauberger received an audience with Hitler, who decided to meet the inventor personally.

In 1938, the governor of Austria, J. Streicher, ordered that 10 million Reichsmarks be given to Schauberger and that a laboratory in Nuremberg be placed at his disposal. Schauberger recalled his son Walter from the University of Dresden, where he studied at the Faculty of Engineering, and began to study vortex flows in the laboratory. Studying the vortex flow of liquid, Schauberger came to the conclusion that it is possible to create a fundamentally new type of engine. In 1940, he created the first sample of his engine, which received the designation “Keri sh”-A, and soon the basic design of the engine, by order of KIM, was transferred to the Heinkel company. In 1941, Schauberger was connected to work on the engine cooling system at the Messerschmitt company.

However, he does not stop working with his Keri i-A engine. The main idea used in this engine was to combine the compressor and turbine wheel into a single unit. The engine model had a diameter of 1.5 m and weighed more than 130 kg. A rotor with helical blades was located in the engine housing; an electric starter was fixed above the housing. The starter motor drove the rotor, which formed a mini-tornado. In this case, the liquid, discarded due to

underground plant

Richard Mite

Hans Kammler - head of work on secret SS rockets

Viktor Schauberger

Eachesptase Kozyrÿÿ, Mihsshtu Kazenrev

centrifugal force to the periphery, passed through the "corkscrews" of the rotor and began to rotate along the axis of each of the blades. Schauberger believed that under certain conditions the vortex became self-sustaining, like a natural tornado. To do this, it is necessary to bring heat to the vortex, which would be absorbed by it and maintain its rotation. This function was performed by a heat exchanger. When the engine reached a self-sufficient mode, the starter was turned off, water was supplied to the engine through pipelines under a certain pressure. The mini-tornadoes formed by the rotor went around the inner surface of the upper part of the engine, fell into the inner cone and were ejected through the nozzle. The first test of the engine turned out to be unsuccessful: it flew out through the roof of the laboratory and destroyed itself in the process.

According to some reports, after this incident, Schauberger was imprisoned in a concentration camp in Mauthausen. Here, on the instructions of the SS, he is working on the creation of a miniature low-noise submarine for sabotage purposes, the so-called “bio-submarine”, he was assigned a group of specialists from among the prisoners, numbering about 30 people, to help him. The submarine was to be called Pogepe (“Trout”), as it moved in the water around it, a vortex current was created using the engine to reduce resistance. In 1944, Schauberger was returned to Vienna, then the SS connected him to the Schriever disk program. At the end of the war, representatives of the American special services were the first to break into the Schauberger laboratory, despite the fact that it was in the Soviet zone of occupation. After a brief interrogation, they released the specialists recruited from the prisoners of the concentration camp, and Schauberger himself, along with all the documentation, was taken to the American zone and imprisoned for six months in a filtration camp in order to ascertain the degree of his awareness. The Soviet secret services, arriving later than the Americans, found only scattered sheets with suspicious drawings and figures.

TOR

Man-made NGOs

After the end of the war with Japan, Schauberger was released, forbidding him to engage in further “flying discs”. He has worked on various civilian vortex technology projects, including generators, water purification and air purification. Having learned about the work of the Avro-Canada company in the field of creating disk devices, he turned to the company with offers of cooperation, but was refused. In 1957, W. Schauberger and his son Walter were offered to move to the USA and work on recreating his engine. They agreed, after which they began their work at a secret military base in Texas, and they were forbidden to contact the outside world. When the contract was coming to an end, Viktor Schauberger categorically refused the offer to extend the contract. Leaving the USA, the father and son signed a non-disclosure agreement, and the Americans reserved all rights to the results of the work. Five days after returning home to Austria on September 25, 1958, Viktor Schauberger died. According to Walter, before his death, his father kept repeating: “They took everything from me. I don't belong to myself anymore."

An analysis of the technical achievements of the Germans in the development of the “wonder weapon” shows that although in some areas they surpassed the world level, there was nothing extraterrestrial in their developments. Moreover, the maximum speeds (from 2,000 km/h to 7,000 km/h) attributed to disk vehicles of the Second World War by some aviation historians (mainly German) are in fact several times overestimated. The level of development of German engine building at that time was such that the goal of one of the pioneers in the development of supersonic aircraft, Professor A. Lippisch, was to achieve a maximum speed of 2000 km/h. Higher speeds (up to 3500 km / h) were achieved only by the V-2 rockets developed by W. von Braun. But it must be borne in mind that such a high flight speed was achieved within

Vpachesgiz Kure, Mihaslt Kazerev

The "Keri t" "Kershvt" engine of V. Schauberger was only for a very short period of time - the flight time of the rocket was only about five minutes, and the operating time of the powerful liquid-propellant rocket engine, with which the rocket was equipped, did not exceed 60-70 seconds.

Attempts by German scientists and designers to create devices capable of flying for a long time at a speed many times greater than the speed of sound ended by the end of the war only with the development of the concept of a hypersonic bomber by E. Senger. Until the end of the war, this concept did not have time to realize. It required a huge amount of work on the creation of appropriate launch devices, the creation of powerful rocket engines, the study of problems associated with the heating of structural elements of the aircraft and its units during flight at hypersonic speeds, the development of the bomber project itself, the development of navigation aids, the development hypersonic bombs, etc.

4. UNDER THE COVER OF UFOLOGIME

Immediately after the occupation of the western regions of Germany, the British and Americans organized a special service, CIOS (Company te repse Obesnuez Zibsottyee), which was engaged in the search for and collection of technical documentation and samples of captured equipment. The collected material was sent to London, where the headquarters of CIOS was located. The scale of the work carried out is evidenced by the fact that the weight of all collected documents amounted to about 12 thousand tons. From all this quantity, after a thorough study, about 250 tons of mostly secret documents and drawings were selected. In addition to the joint collection of information, each of the allies carried out secretly from each other an independent collection of information and equipment with the help of their own special services: for the British, this was done by the IIB (one of the groups of naval commandos was headed by Ian Fleming, who after the war created a series of novels about James Bond, agent 007), while the Americans have the Bureau of Strategic Services (OSS - the predecessor of the CIA). Particularly active, and often in violation of allied obligations, were the American intelligence services in Germany. For example, a research center in

Nordhausen ended up in the Soviet occupation zone. However, after the center was occupied by Soviet troops, it turned out that much of the equipment, as well as hundreds of V-2 missiles, had already been taken out by the Americans. The Americans behaved similarly towards the British. For example, the director of the English research center in Farnborough, W. Farren, was not allowed by the Americans for more than a month to enter the captured Messerschmitt factories under various bureaucratic pretexts. Farren managed to get into the Messerschmitt factories only in July 1945,

where he found American soldiers and various specialists who were sending the most sophisticated equipment and aviation equipment to the USA. Even before the end of the war, the Americans were in full swing exporting tanks, anti-aircraft guns, V-1 cruise missiles, V-2 ballistic missiles and much more from Germany. The trophies were transported by rail to Normandy (France), and then reloaded onto aircraft carriers and transport ships for shipment to the United States.

Most of the scientific equipment, including wind tunnels, was transferred to the US Army Aviation Research Center (Wrightfield, near Dayton, Ohio). Captured equipment was transported in large quantities to Freemanfield (Indiana), where the Army Aviation Technical Service created a center for the study of German aviation technology. Another center designed to study and test captured missiles was set up at a specially selected site in the desert area of White Sands, New Mexico. The management of the testing of equipment was carried out by a joint bureau, which included representatives of the army, navy and civilian research organizations of the United States.

The equipment of German research centers was widely used by the Allies. For example, the GEA was completely transferred to the jurisdiction of the British Ministry of Aviation Industry, part of the equipment of this institute was taken to England. The Americans transported to the United States a wind tunnel, which was previously located in the area of Munich, and installed it in the naval artillery laboratory in White Oak (Maryland). The French removed the unfinished supersonic tube from Otztal.

In addition to equipment and aircraft, the Americans, as part of the top-secret program Paperclip, took to the United States about 1,000 German warheads.

general scientists and engineers. The Americans entrusted the compiling of the list of specialists to be exported to the USA to the German W. Rosenberg, who was hired in the FSU, who under the Nazi regime headed the scientific department in the technical department of the SS. The following excerpts from the list of names of German specialists interned in the West indicate that the entire elite of German aviation science and technology was there, including almost all the chief designers, here are some of them:

W. von Braun - Rocket Technical Director

center in Peenemünde;

A. Busemann is a prominent specialist in the field of gas dynamics and high-velocity aerodynamics;

V. George - Director of the Institute of Gliding,

member of the Presidium of the Aviation Academy;

V. Dornberger - General, head of the Rocket

center in Peenemünde;

C. Dornier - founder of the Dornier company;

3. Zenger - the developer of the concept of the first in the world

aerospace aircraft;

A. Lippisch - famous aircraft designer, creator

missile fighter Me 163, developer of the first

supersonic aircraft;

V. Messerschmitt - Vice-President of the Aviation Academy

tion, chairman of the board of the Aviation Scientific

research center (Munich), head of the company

"Messerschmitt";

L. Prandtl - Director of the Institute of hydroaerodynes

ki, member of the Presidium of the Aviation Academy, worldwide from

renowned scientist in the field of aerodynamics and heat transfer;

K. Tank - a famous aircraft designer, technical

director of the Focke-Wulf company, vice president

aviation academy;

G. Focke, a well-known aircraft designer, one of the founders of the Focke-Wulf and Focke Ahgelis firms; E. Heinkel - head of the company "Heinkel";

G. Schlichting, head of the aerodynamic department of the Higher Technical School (Braunschweig); F. Schmidt is a leading specialist in the field of creating turbojet engines;

T. Zobel — Head of the Department of High Speeds of the Research Institute
aviation.

The British intelligence services were much less successful than the Americans. Of the most famous German specialists in the zone of influence of the British, there were: G. Walter, chief designer of aircraft liquid-propellant rocket engines and head of an engine building company, brothers R. and V. Horten, authors of aircraft - “flying wings” N IX and N XIII , and some others. The work of the Soviet secret services turned out to be the least productive: specialists turned out to be in the Soviet zone of influence, the most qualified of which, during the Nazi regime, occupied positions in their firms no higher than the head of a department or group.

It should be noted that a group of specialists from the Rocket Center in Peenemünde, headed by General Dornberger and von Braun, were deliberately preparing to surrender to the Americans. On May 5, 1945, Peenemünde was captured by Soviet troops, but it turned out that the scientific and technical personnel managed to evacuate to Bavaria in April. W. von Braun took refuge in an Alpine ski resort, where, after the announcement of the surrender of Germany, he, along with his employees, surrendered to the Americans. It is interesting that the group surrendered together with the archive, which was taken out by car. This archive contained all the most valuable of what was developed in Peenemünde. There was not only complete documentation for the V-2 combat missile, but also materials on promising missiles,

including the Ad and A10 missiles, the combination of which was already a military weapon of the intercontinental class.

The captured German rocket scientists were transported to the USA and in September 1945 they were placed near Fort Bliss in Texas. A missile range was built here with test benches, a starting position, living quarters, etc. In March 1946, the first fire tests of the V-2 were carried out, and then the launches of these missiles began. In 1950, the German von Braun group was transferred to the army center in Huntsville (Alabama). Here, the American Redstone and Jupiter rockets were developed by this group, a launch vehicle was created, with the help of which, on January 31, 1958, the first American artificial Earth satellite, Ekeplorer-1, was put into orbit.

Operation Paperclip, in which German specialists were taken to the United States and immediately involved in the creation of the latest American weapons, became one of the most successful operations of the American intelligence services. It was curtailed only in 1973, before that any mention of German specialists in the media was categorically prohibited. American intelligence agencies had something to hide. On the recommendation of von Braun, the German specialists he needed were invited to work, who had previously worked in Peenemünde or on assignment from this center, so that by 1955 there were already 765 German specialists working in America instead of 127 prisoners of war who had begun this business in 1945. In the 1950s and 1960s, it was they, the former employees of the Peenemünde center, who played the leading role here. It is also worth mentioning that in Huntsville, where von Braun was the technical director, there was a department for advanced research, in which the Germans also worked. At one time Hermann Oberth worked in this department, with whom von Braun once studied. Especially for Oberth, a sector was created, the main task of which was to study the main

trends in the development of rocket technology and the determination of directions in which efforts should be concentrated.

The main achievements of American space technology (up to the Saturn-5 launch vehicle and its engines, as well as the Apollo spacecraft that delivered the first people to the Moon) are associated with this center. At the same time, for some reason, the end of the work of von Braun and his German collaborators in the USA coincided with the termination of the lunar program.

The Second World War did not have time to end, and the Pentagon was already developing secret operations against the USSR and the countries of the socialist camp. One of the priority areas

was strategic intelligence. In early 1946, US Air Force analysts developed the KAMP project, which used technology similar to Japanese balloon bombing technology. The history of the bombing by the Japanese of the territory of the United States with the help of balloons will be described below. The Americans, on the other hand, intended to use balloons that could fly, carrying equipment for photographic reconnaissance of objects on the territory of the Soviet Union. Beginning in September 1947, one of the departments of the Sepega] MÿShs company (Minneapolis, Minnesota) started manufacturing very large balloons. These plastic balls were ordered by the Air Force and Navy. Filled with hydrogen or helium, they were

much lighter than earlier balloons made of rubber-like materials, and were capable of flying at altitudes of 25 km and higher, significantly exceeding the high-altitude capabilities of aircraft of that time. The first flights of these balloons were carried out as part of the Skyhook (Skyhook) project under a contract with the US Navy Research Office (OMK - Ose o' Mama! Eeseags).

In September 1950, the US Air Force Scientific Advisory Board (AESAB) studied the issue of developing strategic reconnaissance equipment against the USSR and other countries of the socialist camp. The results of the discussion were summarized in July 1951 by Colonel Richard Leghorn, head of the intelligence systems division at Wrightfield Air Force Base, in "Remarks on the projects of intercontinental intelligence systems": "Recent studies have established that some targets should be sought using guiding systems. These goals are divided into two groups: pre-war reconnaissance and reconnaissance after the outbreak of hostilities. A short intensive campaign (an atomic strike) being considered by the SAC (Strategic Air Command) requires the collection of as much information as possible before the start of hostilities. Along with the requirements of the SAC for the development of effective means of delivering nuclear weapons, the need for reconnaissance in the pre-war period takes on even greater importance ... Apparatus for pre-war reconnaissance must meet the following requirements:

1. Minimal detection capabilities.

2. Minimum chance of interception.

3. An unmanned spacecraft is highly preferred.

4. The configuration of the vehicle must comply with the "plan for ensuring the stealth operation", in the event of a failure of which, excuses could be given for the type of departure from the route when performing on

scientific research or weather research. Regardless of whether the State Department agrees to the use of any of these vehicles, the air force department must fully develop the technical capability of pre-war reconnaissance ... "

Next, Leghorn analyzes the capabilities of vehicles previously considered by AESAB, such as satellites, balloons, cruise missiles with reconnaissance equipment, unmanned and manned aircraft, as well as all sorts of exotic vehicles, such as flying platforms. In conclusion, it was noted that only stratospheric balloons “with a constant flight altitude” can accomplish this task in a short time, at a reasonable cost, and with minimal chances of provoking the enemy to retaliate.

actions. Already in early October, the Air Force begins the Sorgyeg (Gopher) project (a system of reconnaissance balloons), connecting the Cambridge research center to the program.

Meanwhile, in February 1951, the physicist Urner Liddell of the Naval Research and Development Office (RRO) stated in the press that "5-pack" was largely responsible for UFO sightings: "Flying saucers have been, and are undeniably real." . They are part of the federal government's theoretical study program, which is important, although not as dramatic, as the appearance of aliens from Mars, which is feared by the suspicious public. A flying saucer is a huge hot air balloon 100 feet in diameter called a "ZKkuook". As has been observed by earthlings, objects move at speeds up to 200 miles per hour at altitudes up to 19 miles. Liddell, he says, studied about 2,000 reports of "flying saucer" sightings dating back to 1947 and concluded that "there is not a single reliable report of observations

deniya, which would not apply to ZKupooK. The official version of the flights of balloons under the 8kusook program consisted in the study of cosmic rays at high altitudes.

Liddell's statement was, of course, an exaggeration. It is clear that the "5cook" balloons could not be held responsible for all cases of the appearance of "flying saucers" before 1951. Apparently, this statement was made at the direction of the secret services in order to reassure the population and reduce interest in observing unknown aircraft that were not intended to be shown to the general public. And the secret services had cause for concern - some inquisitive observers began to think about the appointment of unknown objects. For example, Corel Lorenzen, who observed one of the hot air balloons in Sturgeon Bay, wrote an article in which she speculated that “that brilliant UFO could be used to practice some type of 'high-altitude photographic reconnaissance' technique. Lorenzen soon began a series of publications in the Bulletin of the Air Phenomena Investigation Organization (ARCO), which became one of the first American groups to study the UFO phenomenon and the largest

of them.

In the middle of 1951, the Beasop Hi project began its work as an integral part of the air defense project Ineojp, which included 15 experts from aviation technical intelligence. Karl Overheydzh from Kodak was appointed chairman of the commission for the project "Weasop NS". In addition to intelligence experts, the commission included D. Baker and E. Purcell from Harvard University, editor of the Christian Science Monitor S. Davis, P. Goldmark from the Central Broadcasting Service CB5, founder of Polaroid E Land et al. Colonel R. Leghorn was the intelligence representative of the Wrightfield airbase in the project "Weasop NSh".

It was the members of the commission who proposed to begin the development of an "invisible" airship. This flat giant, painted in a bluish non-reflective coating, was supposed to fly at a very slow speed at an altitude of about 30 km along the borders of the Soviet Union, photographing targets of interest to the Americans. The Commission studied many unique designs of air vehicles, among which was a long-range aircraft with a nuclear power plant. From the previous sections, the reader knows that the leadership of the Blue Book project was entrusted to Captain Edward Rappelt. Rappelt was a professional reconnaissance officer, chief of the department for the study of aerial phenomena in the ATK, so all the activities of the Blue Book were under the control of the reconnaissance agencies. So, for example, on March 26, 1952, Rappelt and Colonel Kirkland from the ATS took part in the work of the commission all day long.

"Weasop NOT". Apparently, Rappelt and Kirkland were invited to participate in the work of the commission not out of idle curiosity.

On June 15, the report of the project "Weasop NSh" was published under the title "Problems of intelligence gathering and intelligence in the Air Force", which, in part, said: "The report advocates radical approaches to obtain intelligence information necessary for national interests. Its 14 chapters cover radar, radio and photographic surveillance, the use of passive infrared and microwave reconnaissance methods and discuss the development of advanced reconnaissance vehicles. One of the report's key recommendations concerns the development of high-altitude reconnaissance aircraft. We have reached a period in history when our peacetime knowledge of the capabilities, actions and dispositions of a potentially hostile nation requires that we supplement this with the maximum amount of information available through aerial reconnaissance. To avoid political complications, such an aerial

reconnaissance should be carried out by any vehicle in friendly airspace or by any other vehicle that can operate in Soviet airspace with very low interception or detection capabilities.

In October of the same year, a memorandum was submitted to the Psychological Strategy Council by H. Chadwell, Assistant Director of the CIA Scientific Intelligence Department: “I propose that we discuss in the Council the possibility of using the UFO phenomenon in an offensive or defensive form for the purposes of conducting psychological war."

In January 1953, the CIA Scientific Advisory Committee on UFOs, chaired by Dr. H. Robertson, expressed its concern about the activities of some amateur groups like ARCO engaged in the study of unidentified objects.

In March, W. Lamar, head of one of the departments of the Aviation Research Center at Wrightfield (MARS), and Major D. Seberg, an expert in aircraft engines, formulated the initial requirements for a high-altitude strategic reconnaissance aircraft, the development of which was planned within the framework of project "Ba! 4 eare" ("Bald Eagle"). German specialists took part in the formation of these requirements. Among them were Richard Vogt, the former chief designer of the Blom and Voss company (aircraft VU 141, VU R.204, VU 237, etc.), and Vollemar Voigt from the Messerschmitt company (Me R.1092, etc.), exported to the United States as part of Operation Paperclip and working for MARS as aircraft experts. In mid-summer, a contract was signed for the development of a reconnaissance aircraft with three firms: Bell Aircraft (X-16), Fairchild (MX-2147) and Martin (KV-57).

In October 1953, Project Blue Book issued Special Communication No. 14, which published a review of UFO data prepared for the press.

Air Force Secretary Donald Quarles. These materials told about a disk apparatus developed by the Canadian company Avro and prepared for testing. A week later, the media were filled with reports that if UFOs appeared, they would be advanced Avro vehicles operated by American pilots. By the way, regarding the members of the Blue Book project, it is generally accepted that they were divided into two camps: some did not believe in the extraterrestrial origin of UFOs, while others recognized their extraterrestrial origin. However, the report of Frederick Durant, who was a rocket specialist and officially represented in the project the firm "Apig O. ie," was recently declassified.

Ips." In his report, sent to the assistant director of the CIA's Scientific Intelligence Directorate, Durant reports on the meeting of the commission on UFOs, which took place on January 14-18, 1953. In it, he describes in detail, almost by the hour, the course of the meeting and reports who spoke and about than he said. But what is curious is not that one of the members of the project was apparently a CIA informant, but that he wrote: “It was interesting to note that none of the members of the commission did not want to accept the possibility of aliens visiting the Earth when or. They did not find any evidence of a connection between the appearing objects and space travel.” From this phrase it follows that all the specialists from the commission did not believe in the extraterrestrial origin of UFOs and that behind the unexplained few percent of UFO appearances were terrestrial aircraft, which the Blue Book could not talk about for reasons of secrecy.

On October 18, 1954, an article appeared in the London Evening Paper announcing that experimental monkeys were mistaken for aliens landing on their "flying saucers". These monkeys, dressed in space suits and oxygen masks, are used by American

launch pad, from which vertical take-off was carried out. Next to the hangar there was a flight control command post and a radar station. However, von Braun's idea did not receive support in KEM. The main disadvantages, according to specialists of the VEM Technical Department, were the high cost of facilities and equipment of the complex, the vulnerability of the launch complex and the need to refuel the aircraft with fuel components immediately before launch (liquid oxygen quickly evaporates after refueling).

Interceptor characteristics: wingspan - 8.5 m, aircraft length - 9.3 m, height - 3.02 m, takeoff weight - 5000 kg, horizontal flight speed - 700 km / h, rate of climb - 151 m / s, practical ceiling - 8000 m, flight time - 15 minutes.

In the spring of 1941, von Braun proposed a second version of his interceptor, replacing the fixed launch position with a mobile launcher. The aircraft was generally similar to the first version, but had some differences: the keel and rudder had a smaller area, the glass area was increased to improve the pilot's view, the wing began to have a small transverse U. In addition, the developers switched to another composition of the propellant components is Uto (vinyl isobutyl ether) and ZU-Z®yu (a mixture of 90% nitric acid and 10% sulfuric acid). The launcher was a tractor with a trailer on which the aircraft was transported. Before take-off, the aircraft was installed vertically between the tractor and trailer, leaning with the wingtips on truss struts attached to the tractor and trailer, while the tail section of the aircraft relied on a four-wheeled bogie. But this proposal of W. von Braun was also rejected.

Characteristics of the second version of the interceptor: wingspan - 8.6 m, aircraft length - 9.3 m, height - 3.2 m, takeoff weight - 5080 kg, horizontal field speed

ta — 690 km/h, rate of climb — 143 m/s, service ceiling — 8000 m, flight time — 15 minutes.

In the middle of 1944, von Braun proposed to the Luftwaffe command as part of an “emergency” fighter program (high-speed high-altitude fighter) and a program for the development of an object interceptor, a project for a supersonic rocket aircraft. The aircraft under the designation Ab, 15.75 m long, had a swept wing with a wingspan of 6.33 m, the pilot was located in a pressurized cabin in the forward fuselage. In the tail section of the fuselage there was a combined power plant, consisting of a liquid-propellant rocket engine with a thrust of about 12,000 kg and a ramjet engine, as an oxidizer.

liquid oxygen was assumed, and methanol was used as fuel. The estimated maximum speed of the aircraft was 2900 km/h.

The plane took off vertically, like a rocket. After the liquid-propellant rocket engine was switched off, the ramjet engine began to work, and the machine carried out a horizontal flight for 15-20 minutes.
Landing was carried out on the runway with the help of a wheeled landing gear. To reduce the landing distance, a braking parachute was provided in the rear fuselage. The range of the aircraft was about 800 km, the flight altitude was up to 95 km. The project was not accepted for implementation.

Interceptors by E. Bachem

In 1940, the technical director of Fieseler, Erich Bachem, developed his own project of a vertically launched interceptor E 166 in 1940, similar to the design of von Braun, in two versions. The first option (Nosephargeg G) was a combination of a rocket with a liquid-propellant rocket engine and a single-seat interceptor aircraft with two Ito 004 turbojet engines installed in the wing, the so-called “horse and rider” system. With the help of a rocket, the plane climbed to a height of about 12,000 m, then the rocket was dropped, and the plane switched to the

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Vyachespoe Kozyrev, Mihstil Kozyrez

"V-2", one submarine could tow up to three such containers on cables at a speed of 12 miles per hour. The purpose of this development was to deliver missile strikes on the territory of the United States, this thought did not leave Hitler throughout the war. The missile launch was to be carried out as follows. Containers delivered to a given area of the Atlantic in a submerged position, on command from the submarine, were transferred to a vertical semi-submerged position (similar to a fishing float) by pumping ballast water. The locks of the nose fairing were opened remotely, after which the rocket engine was turned on. The jet of gases flowing from the engine passed through the return channels in the container and knocked out the nose fairing, after which the rocket was launched from the container. By the end of March 1945, preliminary studies were completed, and before the end of the war, one such launch container was built at the shipyard in Elblaga.

In addition, there was a German project of the Andromeda apparatus, which ufologists considered a spacecraft with “flying saucers” placed in the internal compartments. In reality, it was an underwater container for transporting disc devices and carrying out attacks on enemy targets.

It was believed that disk vehicles would be capable of speeds up to 2,400 km/h, reach a practical ceiling of 27,400 m, and a range of 27,000 km.

In accordance with the program, it was supposed to create disks of three types: heavy devices, medium and light ones.

The type of heavy vehicles (up to 30 m in diameter and more) included long-range bombers, transport and ambulance vehicles, strategic reconnaissance vehicles, tankers and guided missiles.

Medium vehicles (up to 9–10 m in diameter) included fighter-interceptors, ground forces support vehicles, and guided missiles. Light vehicles (with a diameter of less than 2 m) were supposed to be used in

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Rukatvartine NGO

as short-range guided missiles (from 36 km to 180 km).

Why did such deep secrecy accompany the development of disc devices in the USA? Firstly, at the end of the 1940s, disc devices were presented as military superweapons, the development of which should not be known to a potential adversary. Secondly, this idea was completely borrowed from the defeated Germans, and the American leadership did not want to admit the use of Nazi technologies. This can also explain the absence of declassified American documents dating from the period 1945-1947. At that time, the Americans were conducting research on secret German technology. Moreover, samples were studied that were recreated by German specialists who were taken out of Germany and lived at secret air bases (for example, the Wright-Patterson air base). And since the new technology was still crude and unfinished, catastrophes often occurred, which were sometimes witnessed by local residents.

Thirdly, there would have been a negative stormy reaction from American citizens and citizens of the countries of the recent anti-Hitler coalition if they knew that German specialists were working in the USA on the creation of American discs. Recall that many of these specialists had high SS ranks and were indirectly responsible for the atrocities of the SS during the war. Besides, how could one explain to an ordinary American that the German specialists are completely trustworthy and work to increase the defense capability of the United States? After all, in the summer of 1939 these same German specialists began to develop a bomber against England, the so-called "Bomber-B", and in 1941 they created a long-range bomber ("Amerika-bomber"), capable of reaching the Atlantic coast of the United States (targets included New Jersey, Ohio, Pennsylvania, Indiana, etc.). In January 1944, an experienced 06-sample long-range bomber from the Junkers company

The Ya 390 entered the 5th Luftwaffe long-range reconnaissance group based in Mont-de-Marsan, south of Bordeaux (France), for military trials. After several training flights, the Lee 390 flew on a secret mission to an area located 20 km from the US coast north of New York, and then returned safely to its base.

The von Braun group, within the framework of Project America, worked on a cruise modification of the V-2 rocket, which was supposed to be launched from floating launch containers, and at the end of the war developed a two-stage intercontinental missile under the designation A9 / A10, the first flight of which was planned by the Germans for 1946. E. Senger developed the concept of a rocket bomber, a prototype of future aerospace aircraft, and calculated, among other options, the trajectory of its flight, followed by a bombing attack on New York.

That is why all references to German specialists working in the USA were strictly prohibited. As for the participation of the Germans in the development of disc devices, then, apparently, the initial work on discs in the United States was carried out with the participation of the German R. Mite, who was taken out of Germany as part of Operation Paperclip, first in Fort Bliss, and then at Wright Patterson. However, a large percentage of failures with new devices, which were mistaken for UFOs, forced the Americans to cooperate with the Canadians and the British and transfer part of their research on disk devices to the Canadian company Avro. In 1951, a special group was created at Avro, headed by the Englishman D. Frost. Mitya was seconded to help the Avro company.

Below we will try to figure out what types of vehicles created by terrestrial designers could be hidden behind a few percent of UFOs that members of the Blue Book project could not identify.

5. DISC-SUPPLIED DEVICES

"Flying Saucers" by D. Frost

John Frost was born at Welton upon Thames in the western suburbs of London on November 30, 1915. After graduating from St. Edward's College, Oxford in 1933, he began working for Airspeed on a small flying boat, then worked for Miles Aircraft and Westland. In 1940 Frost was involved in the development of a large landing glider for Slingsby. In 1942 he moved to De Haviland, where he worked under the supervision of the chief designer R. Bishop over O.N. 100 "Vampire". After the war, the company studies captured German planes and builds his own plane O.N. 108 "Swallow" based on German projects [4 R.15 (further development of the Me 163 fighter) and Me R.1111 (work started in January 1945). First flight O.N. 108 co- John Frost administered May 15, 1946

On June 14, 1947, ten days before Kenneth Arnold's UFO sighting, Frost arrived at Toronto to start work at the Avro-Canada aircraft manufacturer (Malton, near Toronto). Avro-Canada was a branch of the English company Avro, which was part of the concern Hawker Sidley, and many English aviation specialists worked on it. appearance English specialists in Canada contributed to the conclusion of the Anglo-Canadian agreement in December 1944 on joint work in the field of aviation. Despite what has passed 60 years since the conclusion of the agreement, its text is still classified. However, by some assumptions, the agreement was about conducting experiments with radio navigation

on-board instruments, flight tests remotely

controlled high-speed aircraft, as well as

personal type of missiles. At the same time, it took into account

that Canada has large and relatively small

populated areas more suitable for these tests than the territory of England.

There is no information about

about what specifically

SE. malal frost during the lane

five years after moving

to Canada, but in July 1952

he proposed the concept

"Project U" - supersonic

CO th high-altitude aircraft lopa

shaped form. This

the offer was accepted.

Soon Avro-Kana

and yes "got a contract worth

worth 400 thousand dollars

from the Government of Canada to

disk istre development

beater. In August Frost

filed for a patent

UK, after that work began on the creation

mockup apparatus in Malton.

The work was carried out in the strictest secrecy. When Frost, talking to the workers in the assembly shop, made an explanatory sketch on a piece of paper, after the conversation ended, the security officer immediately destroyed the sketches. Alex Raebourne, the firm's then deputy head of operations, described the veil of secrecy during the work: “Secrecy was very high. Armed guards were on duty at the door, as soon as some structural element was made, the drawings were immediately destroyed by the security service. In fact, we never really knew exactly what we were producing.” Verne Morse, one of the members
team-

"Project U"

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Brukatvzarchyў UFO

dy, who was working on a secret project, recalled when the work was completed: “When I first saw the apparatus, I was stunned. I heard rumors that we were working on a "flying saucer", but I did not believe them. I looked at him in amazement."

The apparatus was a disk with a straightened tail. In fact, it was a large-diameter radial turbojet engine, on the axis of which the cockpit was located. There were two air intakes in front of the cabin - one on the upper surface of the disk, and the other on the lower surface. The exhaust of combustion products from the engine was carried out through a system of small nozzles on the sides and in the tail section of the vehicle. It was assumed that such a system of nozzles would make it possible to reduce the temperature of the gases in the exhaust and thereby reduce the visibility of the device in the infrared range. The apparatus was controlled by differential or simultaneous deflection of the nozzle modules of the trailing edge up and down and differential throttling of the side nozzles. The chassis consisted of a very long front retractable two-wheeled strut, a rear wheel and side fenders on the trailing edge. The device could take off vertically from the tail or after a very short run, landing was carried out in a similar way.

During the tests, the developers immediately ran into trouble. The jet engine heated up so much during operation that individual steel parts of the apparatus structure melted, and sometimes rivets fell out due to its strong vibration. However, after the appropriate refinement of the engine, it was possible to bring its resource up to 150 hours. In March 1953, the apparatus is being tested in the wind tunnels of the Royal Air Force in Woodford (Great Britain) in order to evaluate its aerodynamic characteristics. The president of the Hawker-Sidley concern, R. Dobson, personally approved the progress of work on the device.

5 Man-made UFOs 729

Bacheslsa Kozyrev, Mikhail Kazodzem

It's strange, but despite all the precautions taken during the work on the "Project Y", notes on the work of "Avro" on the "flying saucer" began to appear in the media one after another. One of the first reports appeared in the English magazine “Ey still February 27th: “A wooden model of a “flying saucer” is being built at a factory in Malton (Ontario) in conditions of top secrecy. It is reported that the "saucer" will have a diameter of 12 m, a speed of 1500 miles per hour and will be able to take off vertically. Project plans have been studied by the British Air Ministry." This was followed by articles in the English magazine Nushe Kemiem, the London newspaper Tites, the Canadian newspaper The Magician, the Swiss magazine Europa and other publications. These publications shocked Avro management and the Canadian Air Force, as one of the company's leaders put it: "There was something frightening about the fact that our most important secret was revealed so easily."

On September 15, a group of American officers headed by the chief of the Advanced Development Aviation Command (AKRS) of the US Air Force, Lieutenant General D. Putt, arrived at the Avro-Canada company to get acquainted with the "Project U". After examining the device, the general found that "project U" is very similar to the UFOs described by K. Arnold. It was explained to him that D. Frost was following reports of UFOs with interest, and therefore, considering Arnold's report reliable, he gave his apparatus the same form. We remind the reader that K. Arnold subsequently abandoned his original description of the spade-shaped apparatus in favor of the description of the “flying wing”. In January 1954, Avro and the Research Department of the Canadian Department of Defense approached the US Air Force with an official invitation to consider work on the U apparatus as a possible joint project. After consideration, the Americans expressed a desire to change the concept of the device, as a result of which in April Avro proposed to develop

new "Project Y2" specifically for the US Air Force. In May, the CIA's Scientific Intelligence Directorate (Ose og Zaepijs Niešrepse - OST) issued a request for intent to appoint one of the 051 units responsible for coordinating information about foreign analogues of Avro's "flying saucer". A day later, R. Dobson, worried about the activity of the American intelligence services in relation to the work of Avro and the insistent desire of AKOS to fully finance these developments, which made the company directly dependent on the Americans, sent a letter to the British Minister of Supply Duncan Sandys. In this letter, Dobson said that Avro was trying to weaken the Americans' interest in their developments, citing the early stage of work, as well as a possible joint interest in the work of England and Canada. Dobson also expressed annoyance at the Avro leaks.

Nevertheless, on August 13, 1954, the AKOS command issued “Terms of Reference 3”, which set out the requirements for the development plan for the “U2 project”. According to the TOR, the vehicle had to have the following characteristics: vehicle diameter — 8.8 m, empty weight — 9525 kg, weight with full load — 13,154 kg, maximum speed — 3862 km/h, practical ceiling — 24,384 m. In addition, the terms of reference stipulated the need for vertical take-off and landing with the vehicle horizontal in space.

The secret project was given TA priority, previously given priority to the American H-bomb, and later to the 0-2 spy plane and similar programs with a high degree of urgency. "Project Y2" was given the number MX-1794 and the code name "Gadubif" ("William Lamar, head of the MARS bombing section at Wrightfield, who

_ live cow"). Project curator with

at the same time he was responsible for the preparation of the program of the American spy plane 0-2. Financing of the “Project Y2” was supposed to be carried out as follows (in millions of dollars): 1955 - 2.5, 1956 - 6.02, 1957 - 12.03, 1958 - 6.03 , 1959 - 2.03.

"Project 1794" was developed in 1955-1956. The device was a disk in which a large-diameter centrifugal turbojet engine was inscribed. The cockpit was located in the center of the inner circular superstructure with the cockpit canopy oriented in the direction of horizontal flight. Fuel tanks were located around the cockpit, which at the same time protected the cockpit from overheating when the engine was running. Slotted air intakes, placed around the circumference on the upper surface of the superstructure, were intended for vertical takeoff and landing. There was a slot along the entire outer perimeter of the disk

th nozzle that directed the exhaust gases downward, which

ejected ambient air and created the effect of "air cushion". In level flight, air was sucked in through additional air intakes installed on the leading edge of the upper and lower superstructures. Exhaust gases were ejected through nozzles on the rear semicircle of the disk, creating a forward reactive force, and side nozzles,

"Project 1794"

providing control of the disk in flight, the slotted nozzle was closed with shutters.

The applied propulsion system for the research apparatus is based on a two-way centrifugal turbojet engine. The basis of this engine is a very large diameter disk rotor. The rotating elements of a conventional gas turbine, namely the compressor rotor, transmission shaft and turbine impeller, have been rebuilt for a disc configuration. This disk, installed between the upper and lower combustion chambers, rotated on a double-sided air cushion bearing. The compressor had six stages, providing a compression ratio in it up to 3. From the last stage of the compressor, the air passed through the combustion chambers, the turbine inlet guide vanes, through the turbine blades and then through the exhaust pipe, which was the outer perimeter of the aircraft, into the nozzles. Compressor and turbine blades are straight and easy to manufacture, unlike blades of axial compressors and turbines. The proposed air cushion bearing supporting the spinning rotor eliminated many of the problems that are inherent in mechanical bearings. The turbine blades were air cooled. The aircraft was controlled by control flaps that changed the thrust of the corresponding group of nozzles. The project was handed over to the Americans.

Characteristics of the project 1794 vehicle: disk diameter - 8.9 m, disk area - 62.2 m?, canopy height - 1.14 m, empty weight - 9548 kg, maximum takeoff weight - 13 254 kg, maximum fuel capacity - 3600 l, thrust-weight ratio - 1.73, maximum speed - 2768 km/h, service ceiling - 21,823 m, service ceiling in hovering mode - 5400 m, climb time 21,000 m - 4 , 2 min., range - 998 km. —

However, as early as January 17, 1955, the command of the AKP canceled the requirements of "Terms of Reference 3",

and the name

The term "Gadubigd" ceased to be used in relation to the project of the company "Avro". The project continued, but at a lower priority level, and on February 16, a new terms of reference for the development of "project 9961" was issued, codenamed "Zyuer Baz" ("Silver Bug").

In April 1956, the company, at its own expense, began the development of a disk apparatus under the designation RU.704, which instead of one large radial turbojet engine (as it was in the “1794 project”) had eight small axial turbojet engines “Mreg”. These engines were located inside the housing radially and symmetrically with respect to the central rotor, on which the compressor and turbine were located. Accordingly, the engine management system was changed. The assembly of the device was completed by October 1957, and ground tests were carried out on a specially designed installation and lasted from January to the end of 1958. The RU.704 device was offered to the US Air Force.

In parallel with the work on RU.704, the development of a supersonic fighter bomber was carried out under a contract with the US Air Force, issued to Avro-Canada in 1955. The project had the American designation M/5-606A (Mearop Zuchet 606A). A group led by D. Frost began work on a discoplane, i.e. an aircraft with a round wing. The device was developed in two versions. In both versions, the cockpit was located in the forward fuselage. The landing gear is four-pillar, retractable in flight - two main ventral struts located in tandem, and two side ones. In accordance with the terms of reference, the power plant had to be combined. It consisted of a radial turbojet engine for vertical take-off and landing, located in the wing, and an axial power plant for horizontal flight, located in the rear of the fuselage. In the first version, the axial power plant consisted of two turbojet engines with a central bow air

farmer. In the second version, the power plant consisted of six ramjet engines with two side air intakes on the sides of the cabin.

Characteristics of the U/5-606A diskoplane: wing diameter - 8.8 m, wing area - 60.3 mg, fuselage length - 11.3 m, maximum takeoff weight - 9071 kg, fuel weight - 3400 kg, bomb load - 450 kg, combat radius - 1000 km, maximum speed - M==2.5.

In 1958, the US Army became interested in the work of the company, which at that time was conducting research within the framework of the Flying Jeep program. Quite unexpectedly for the company, as a result of reaching an agreement between the Air Force and the Avrocar army

RU.704 was rejected, and work on \8-606A was terminated at the beginning of 1959. Frost's group was reassigned with a new contract to develop a prototype "flying jeep". The new vehicle received the American designation U7-9AU, at the company it was designated as Avrocar. The Avrocar was designed to explore a new way of flying CETO (Otopspa Ayes Takeo apa Gapaipr) — takeoff and landing using the influence of the Earth. It was supposed to fly in the altitude range from 0 to 3000 m and have a maximum speed of about 500 km/h. It must be said that under the Flying Jeep program, Avrocar competed with the U7-8R Skycar developed by Pyasetsky and the Kh-ZV Sauser (Saucer) developed by Princeton University.

Frost, while working on the new apparatus, retained its disk configuration and jet control method. The power plant, however, has been changed. The lifting force was created using a central axial fan, the air intake of which was located on top.

ao zee

Scheme of apparatus RU.704

Project U/5-6064-1

Avrocar

Bukotasrmon UFO

on the machine axis. The air after the fan entered the annular manifold, located along the outer circumference of the case, and from it through the slit nozzle it was thrown down, creating an "air cushion". The control of the apparatus was carried out with the help of throttle valves. The fan was driven by three small 1-69 axial turbojet engines. TRDs were located in the body of the apparatus, forming an external triangle with respect to the fan, the air intakes of which were located on the upper surface of the apparatus. The crew consisted of two people and was placed in two small separate cabins: in the left - the pilot, in the right - the observer or passenger. The payload compartment was located in the rear segment of the apparatus.

A total of two prototypes were built. The first prototype (No. 58-7055) was rolled out of the gates of the assembly shop in May 1959, it was immediately sent to the research center named after. Ames (MAZA) for testing in a wind tunnel. The assembly of the second car was completed in August of the same year. She was left at the firm for factory testing. Its first tethered flight took place on September 29, 1959, and its first free flight on November 12 of the same year. The entire cycle of flight tests at the firm was performed by test pilot S. Potocki. The first successful flights caused optimism in the firm. Frost assumed in the future to start developing a whole series of disks: the Avrotrak, twice as large as the Avrocar, and with almost double the combat load, the Avrovagon for transporting airborne units and, as a civilian version, for transporting passengers , "Avroangel" for emergency and rescue operations, "Auropelican" for anti-submarine warfare and marine rescue, etc.

Official flight tests with the participation of American representatives took place in April 1960.

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Bachestse Kozyrev, Mihsil Keozyrevz

On the surface, instability is observed in some flight modes, which could lead to the vehicle flipping upside down. The maximum speed of the vehicle, contrary to what was expected, was only 56 km/h. The effect of instability was also revealed during tests in an aerodynamic tube. R. Johnson Scholars (1932)

from the center. ames with tse

To eliminate the negative effect, they independently finalized the design of the apparatus by installing a T-shaped tail. Frost was asked to refine the design of the Avrocar by adding this plumage, to which he replied with a categorical refusal. He was an adherent of the pure form of the disk and intended to eliminate the disadvantage at the stage of creating a prototype by refining the inkjet control system. By the way, the same effect of instability was revealed during tests of the X-38 disk, after which the developers from Princeton University added a two-keel vertical tail connected to a horizontal stabilizer to their device.

C. Vought Discoplane

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Handmade BUT

At the end of 1961, funding for the development of Avrocar was cut off. Some time after the termination of all work on disk devices, D. Frost resigned from the company. He believed that he did not deserve such an attitude of customers to his developments, and moved from Canada to New Zealand for permanent residence. He died there in 1979. As for his offspring, one of the Avrocar disk vehicles has survived to this day, it is gathering dust in the warehouse of the National Aerospace Museum in the USA.

Comparative characteristics of the disks U7-9AU "Avrocar" and Kh-3V "Saucer":

Characteristics II `U2-9AU XV fan _ apparatus diameter | 55 ova | height, m EE EE | 1.5 || 1.5 | | 2563 | diameter, m EE | 1.52 ° | 147 takeoff weight, kg | | 725 |

With the number and type of engines | ZTRD | 2pd | 2 zkilage ||| |

_ maximum speed, km/h | 56 | 80 | flight altitude (hovering), m 0.9 | 0.6 |

The history of the development of disk devices by the team

D. Frost is very instructive. In the process of working on

Frost received about ten patents for the design and systems of its devices. The question arises as to the expediency of spending many millions of budget dollars on work that was stopped by the Americans even at the stage of creating a prototype. However, there is an opinion in the West that practical Americans, concluding contracts with Avro Canada, did not waste money in vain, but pursued a certain goal. It consisted in creating a "smoke screen" around the development of disk devices carried out by American aircraft manufacturers, and in

if necessary, hide behind Canadian developments. And there is no doubt that the Americans worked on the creation of discs: there are more than a dozen US patents issued for designs and systems of disc aircraft in the period from the 40s to the 90s of the twentieth century.

Disc gyroplanes by D. Caldwell

Recall that in August 1947 the US Air Force officially informed the FBI that no work on disk devices was and is not being carried out in the country. When journalists searched for the mysterious inventor of "flying saucers" Caldwell, the Air Force could not help them, saying that they did not know anything about him. All this, to put it mildly, was not true.

Jonathan Caldwell was born in the small town of Hensol (Ontario, Canada) in 1883. He attended Government College in Corvallis (Oregon, USA) in 1912-1913, majoring in mechanical engineering. In the 1920s, according to his statements late in life, Caldwell became interested in aviation and began to study the basic principles of aerodynamics, drawing knowledge from textbooks and encyclopedias. In February 1923, while living in Santa Monica, California, he applied for a patent for a bizarre vertical take-off aircraft, the so-called Susovugo. The "wings" of the aircraft were actually small blades of wheel-like rotating structures mounted on both sides of the fuselage of a conventional aircraft.

The Susjorugo patent was obtained in the summer of 1927, but by the end of the same year, Caldwell, already living in Denver, filed another patent for a human-powered flapping-wing aircraft, or "major". This ingenious invention resembled a rowing

a boat with bird-like wings. The wings were equipped with flexible fabric flaps which,

were supposed to open on the upstroke and close on the downstroke. The power to drive the wings had to be provided by the pilot, who had to be an athletic person. ·

Caldwell founded a company called Otaw Sooze Eyes (Grey Goose Air Lines) to raise capital to build his flywheel. By 1931, he had worked in the states of Nevada and Colorado, and then moved his business to the east coast of the country. first to Orangeburg (New York), and later to Madison (New Jersey). At the beginning of 1932, he was actively proposing Otto Cooce Airways as a new passenger and cargo airline. A newsreel dated January 14, 1932 has survived, showing Caldwell during a demonstration of a mock-up model of a flywheel, which pilot Emile Harrier unsuccessfully tried to lift into the air. The construction of a prototype flywheel was started in 1932 at Teterboro Airport. In 1934 Caldusell moved his business to Washington, D.C., his office was at 1225 Avenue, three blocks from the White House. At about the same time, he registered with the Maryland Securities and Exchange Commission his latest design for a new type of autogyro, which he called the “drive-helicopter.” According to Caldwell's application, it will be "a light, safe and comfortable general purpose aircraft capable of taking off and landing on a small area or on the flat roof of a building." The device could carry up to 4-5 passengers, and its cost was expected to be lower than the cost of cars.

The wing of the apparatus was actually a cloth-covered disk with a diameter of 3.7 m, mounted on a rotating hub. It was a combination of the wing and rotor of an autogyro. Four small blades were mounted around the edge of the disc, causing the entire assembly to rotate as the aircraft moved forward. For propulsion, a nine-cylinder air engine was used.

leg cooling and a two-bladed propeller. The pilot had to control the aircraft using the rudders and combined aileron-shields in the tail section. The device was in many ways similar to conventional aircraft of that period, its power structure was welded from steel pipes and covered with lacquered fabric. The takeoff of the vehicle was similar to that of a gyroplane, but after reaching the cruising altitude, the pilot had to act on the brake in the main rotor hub, blocking it in a stationary state. In this position, the rotor served as a wing, and the device in level flight could reach a maximum speed of 170 km/h. An almost vertical landing occurred when performing the reverse procedure.

The prototype vehicle was completed near Washington between 1936 and 1938. The Civil Aviation Agency assigned the vehicle registration number MX-99Y. Envisioning broad military applications for an aircraft that would be capable of taking off and landing vertically and hovering in mid-air, Caldwell approached the military with his plans, but his suggestions were ignored. The first test flight of the device took place near Washington. Mechanic Driggers, who had never flown before, raised the vehicle to a height of about 12 m, but after trying to change course, he realized that the vehicle was not obeying control. Driggers slowed down the engine and the craft slammed down about two hundred meters from its takeoff point. The result of such a rough landing was a broken landing gear, but Drigters was not injured. Subsequently, the chassis was restored and modernized.

In 1939, due to financial difficulties, Caldwell closed the company and moved with his family to Baltimore, where he set up a workshop on Edmonson Avenue in the western part of the city. Here he began work on the new Kogograpе apparatus, which

It was actually a flying rotor with a power plant, a control system and a pilot located in the rotor hub.

Like a helicopter, the Kogogriape was capable of taking off vertically, hovering and then flying in any direction the pilot desired. A small flying model of a car with a quarter-horsepower gasoline engine was made. After flight testing the model, Caldwell built a full-size prototype in his workshop. The body of the apparatus, 4.2 m in diameter and about a meter thick, was made of wood. Two freely rotating metal hoops were mounted on supports at the top and bottom of the body. Four blades were attached to each of the hoops, forming a rotor, the diameter of the apparatus, together with the blades, was 8.5 m. destroy the reaction from the torque. Only one pilot could be placed inside the apparatus, but in the serial machine it was supposed to place four pairs under a large transparent dome in the center of the main rotor tread.
The device, supposedly weighing about 700 kg, was installed for testing on a special stand. Two large vertical pillars were securely attached to the floor of the room, they were passed through the holes in the disk hub in such a way that the apparatus could rise up and hover at a certain distance from the ground when the rotor rotated.

Bankrupt by that time, Caldwell was unable to buy a sufficiently powerful engine, with which it would be possible to start testing the apparatus. Soon he, besieged by creditors demanding a return of money, sold all his property, abandoned the unfinished apparatus and left Baltimore forever.

Planes of Ch. Zimmerman

The development of aircraft with a round wing in the United States began to work even at the beginning of the twentieth century. In 1911, the American Chanes Vout invented a disc-shaped aircraft that looked like an open umbrella. In November 1932, R. Johnson received patent No. 1887411 for the design of a discoplan aircraft. In 1934, an experimental two-seat discoplan "Nimut parasol" was built and successfully flew at the University of Miami. The round wing of this aircraft was located above the fuselage on struts. The developers considered the main advantage of the discoplan to be its ability to fly at high angles of attack. In these regimes, a slow and safe descent was guaranteed, almost the same as with a parachute. In the early 1930s, four experimental aircraft of C. Snyder under the designation “Erap”, which were also called “flying pancakes”, successfully flew.

In the early 1930s, Charles Zimmerman took up the development of disk-like aircraft. In 1933, he won a competition for designs of disk-like vehicles organized by the National Advisory Committee for Aeronautics (MASA). However, the practical implementation of the Zimmermann project was rejected by MASA due to the fact that the project, according to experts, was “too ahead of its time”. Zimmerman was not discouraged and continued to build experimental models. His original plan was to build an aircraft with three crew members in the cockpit in a recumbent position to minimize the drag of the aircraft in flight. The idea was subject to a patent he received in 1938. Zimmerman began work on

Chance Wout in 1937, where he created a model aircraft with an electric engine, which was remotely controlled during tests on a leash in a hangar.

Zimmerman proposed the design of his aircraft to the Navy - in March 1939. A month later, the Navy requested MACA (which was later reorganized into MAZA) to investigate

offer. In October 1939, the wind tunnel test model manufactured at Chance Vout was approved, and the design was given the designation U-173. After XE50-1 model testing in wind tunnels in September 1941 at Langley, Vought built a demonstrative full-scale model of the M-173 aircraft. The first flight of the U-173 took place on November 23, 1942. In total, about 200 flights were performed. The tests, which were recognized as successful, showed that the aircraft was capable of landing at a speed of 56.4 km/h at a very high angle of attack for that time - 36°.

On July 15, 1944, a contract was issued to the firm for the construction of two prototypes of the XE50-1 “Nushe Earhask” (“Flying Pancake”) aircraft: one was intended for flight tests, and the other for static strength tests. The XE50-1 fighter was supposed to be equipped with two Pratt-Whitney K-2000-7 engines with a power of 1350 hp each. every. It was assumed that the range of flight speeds of the aircraft will be from 64 to 684 km / h. The prototypes (No. 33958 and No. 33959) were completed in August 1945, and an innovation was used in the design of the aircraft - a three-layer skin consisting of two outer aluminum layers with an internal filler of balsa. Problems with engines delayed the complete set of machines, in 1947 they tested the aircraft on a leash. Flight tests were supposed to be carried out at the Edwards airbase, but in March 1947 the Navy canceled the XE50-1 project, preferring it

XES0-1 in flight

jet aircraft development. The only flight model of the XEZO-1 aircraft was sent for scrapping, and the M-173 aircraft was preserved as an exhibit for the Smithsonian Institution's collection. While working on the U-173 and XE50-1 aircraft, C. Zimmerman received US patent No. 2431293.

In June 1947, B. Guyton, the lead test pilot of Vought, flew the M-173 to Floyd Bennett to participate in the air show in honor of the US Navy Day. The flight path of the aircraft ran over the sandy beaches of Long Island. As soon as people relaxing on the beach saw a slow-flying U-173 aircraft, reports immediately began to pour in about the appearance of a “flying saucer” in the Long Island area. The aircraft participated in an air show, after which it returned to the Vought factory in Sratford, Connecticut, this was its last flight.

Characteristics of the U-173: power plant - two Continental A-80 engines with a power of 80 hp each. each, wingspan - 7.1 m, aircraft length - 8.1 m, height - 3.9 m, maximum weight - 1024 kg, propeller diameter - 5.0 m, take-off distance - 61 m, climbing time to a height of 1524 m - 7 minutes, maximum speed - 222 km / h.

Characteristics of HEZO-1: power plant - two Pratt-Whitney B-2000-7 engines with a power of 1350 hp each. each, wingspan - 9.9 m, aircraft length - 8.7 m, height - 4.5 m, maximum weight - 7484 kg, propeller diameter - 4.9 m, take-off distance - 216 m, rate of climb - 914 m/min, maximum speed - 624 km/h, range - 1190 km, armament - six guns of 20 mm caliber, two bombs weighing 453 kg each.

Apparatus A. Loeddinga

On July 9, 1947, an article with a drawing of a "flying saucer" was published in one of the Dayton newspapers. The configuration of the cockpit and air inlet devices

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A. Loelding

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Patent No. 3066890 Patent No. 2619302 by N. Price A. Loelding (1952)

Diskoplan-bomber at the hangar

Bachespasv Kazmerenv, Michael KSE

The air intake of the apparatus was reminiscent of the design of the experimental aircraft D. Northrop XP-79V. The author of this publication, judging by the signature under the article, was Alfred Martin, an AMS employee. In fact, this pseudonym was Alfred Loelding, who worked as an engineer in the intelligence department of the T-2 AMS. As you know, later T-2 became the actual core of the Znak project.

In the late autumn of 1947, the T-2 department issued a document to the military attachés of the American embassies instructing them to pay close attention to the possibility of the existence of foreign flying saucer-type aircraft, such as those studied by the AMC command. . The document described the main features of "flying saucers", including the presence of boundary layer control as a means of reducing the aerodynamic drag of the device. In August 1948, Loedding applied for a patent for a saucer-like aircraft with a boundary layer suction system. By October, AMS had created a model of a "flying saucer" for testing in wind tunnels. Little is known about Loedding's work, but there is a 1959 photograph showing him with one of his models.

discoplane.

Discoplan D. Stasinos

In 1950, the company "Northrop" developed a project for the diskoplane No. 97. Work on the diskoplane was headed by Dick Stasinos, a graduate of the D. Northrop Institute of Aeronautics. In the central part of the disk, along the edges of the cockpit, there were two sustainer turbojet engines. Vertical take-off and landing were provided by eight additional engines installed vertically in the body of the vehicle, along the perimeter of the disk body there were eight nozzle devices for controlling

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Handicraft NGOs

device. The purpose and characteristics of the apparatus are unknown, although model No. 97 is in the Ripley Museum in New York.

"Flying saucer" N. Price

Around the same time that C. Johnson of Lockheed reported seeing the mysterious UFO, at the same Lockheed firm, Nathan Price, an engine specialist, was working on the creation of a real “flying saucer” ". Very little is known about Price's place in the history of turbojet development in the United States, but according to some sources, he was working on a complex jet propulsion system as early as 1938.

In January 1953, Price registered an application for a discoplan patent. The diskoplane weighing 25,000 kg had a diameter of 15.2 m, and a turbojet engine of a unique design was used as a power plant. One of the most

Takeoff of a discoplane-bomber

The main purpose of this apparatus was to use liquefied gases (propane, butane or liquid hydrogen) as fuel for turbojet engines. On the sides of the disk there were rotary nozzles, with the help of which the apparatus carried out a short takeoff. After takeoff, the onboard engine nozzles turned horizontally, and the “saucer” accelerated with a gentle climb up to 15,000 m. At this altitude, the vehicle switched to cruise mode with the TRD operation switched to the ramjet mode. When the "saucer" reached a height of 30,480 m, its flight speed reached approximately 4345 km/h. In 1962, N. Price was granted US patent No. 3066890.

Rue Masquei disc rocket

An air-to-air disk-rocket was being developed at the California branch of Convair in Pomona. Tests of rocket models in wind tunnels were carried out at the Arnold Center (AERO), pcs. Tennessee. Research on the creation of disc missiles designed to protect US Air Force strategic bombers in the event of their penetration into the airspace of the USSR was carried out within the framework of the secret Rue MacKey project in the late 1950s and early 1960s. The rocket was a disk with a diameter of a little more than one and a half meters, and an LRE was used as a power plant.

RYTARE disc planes

For the first time the public was informed about these discoplanes by Jack Picket. In the 1960s and early 1970s, he worked at a military publishing house that produced various printed products (newspapers, booklets, calendars of anniversaries, etc.) for military clubs at US Air Force bases. In 1967, on behalf of the adjutant commander

at MacDill Air Force Base (Tampa, Florida), he was preparing an article on the history of US experimental aircraft. To do this, he was allowed to visit the hangars and closed parking lots, where there were various types of aircraft that had ever been tested at the air base. On one of the remote sites, hidden from prying eyes, he found four diskoplanes of different sizes - 6 m, 12 m, 21 and 35 m in diameter. According to Jack Picket, in the US Air Force there was, and possibly still exists, a special squadron, which was armed with discoplanes of various types. The name of this squadron is EYTAEE (Eÿrÿÿer Gopg tapre Tasÿÿsa! Ait-sottapa Yeshshe Eotseÿ). At one time, the squadron was located at Carswell Air Force Base in Fort Worth (Texas), and then it was transferred to James Connolly Air Force Base (Waco, Texas). Officials showed D. Piket numerous photographs of diskoplanes in flight; he claimed that he had even seen photographs of disks flying in formation in an amount of up to 50 devices. Concerning the origin of diskoplanes, he managed to find out the following.

Work on diskoplanes began under the leadership of W. Dornberger and W. von Braun at the VMU//Heinkel plant in Dresden in 1943. The development team was headed by Dr. R. Miethe, who worked in the department of rocket engines VMU / in Berlin. It is believed that the first flight tests of the prototypes took place in the spring of 1944. After the war, many German specialists who worked with discs ended up at the White Sands missile range. R. Mite was seconded to the Avro company, which in the 1950s developed at least 16 disc projects. By 1955

Mite completed the construction of a discoplane, the prototype of which was tested back in 1944 in Germany. The first flight tests of the diskoplane took place at the Avro company in Malton, subsequent tests were carried out in the USA at the Edwards airbase.

D. Picket, describing the construction of a large disco

plan, said that the main landing gear had 6 wheels with a diameter of about 1.5 m, the nose strut had 32 wheels with a diameter of up to 0.9 m. The aerodynamic control surfaces were located along the periphery of the disk. The power plant consisted of four turbojet engines placed inside the disk housing behind the cockpit. Air intakes were located on both sides of the cockpit, engine exhausts were located at the rear of the disc. The bomb bay could contain disk rockets with a diameter of up to 3 m; D. Picket saw rockets of this type in one of the parking lots with abandoned equipment. He also claimed that the diskoplanes he saw repeatedly flew in the airspace of the USSR.

In September 1978, a 35 m discoplane, very similar to the apparatus described by Picket, was seen in hangar No. 4 at Wright-Patterson Air Force Base by Warren Botz, a former test pilot, participant in World War II.

Diskoplan R. Kuzine

In February 1956, a secret US Air Force intelligence report provided information about a vertical take-off and landing diskoplane developed by the French aircraft designer René Cousin. According to the report, this was a modified version based on the same principle that Cousine had applied in his first apparatus. Two large counter-rotating rotors were placed inside the disc body. The cockpit was located in the central, fixed part of the disk. At the bottom of the disk were the Uireg marching turbojet engine with a thrust of 743 kg and the chassis. There were 50 rotary blades on each rotor along the perimeter, in the first modification of the apparatus there were 48 of them. every. The message also said. About,

that the device has already been tested in

wind tunnel, flight tests were to begin on 8 April. |

Characteristics of the device: diameter - 13.6 m, empty weight - 4491 kg, maximum take-off weight - 12 565 kg.

Aircraft M. Vibo

Michel Vibot was born in Lille (France). Shortly after the end of the First World War, he founded the company "Sose 4es Augiot" near Paris. While biplanes were in use, Wibault developed several projects for fighters and transport aircraft of the monoplane scheme, in addition, he used duralumin in the structures of his aircraft. His MP-282 transport aircraft, comparable to the German Junkers ÿi 52 aircraft, has been operated in France since the early 1930s. In 1922 Wibault became a consultant to the British airline Vickers and apparently maintained links with British industry for many years. During the Second World War, Wibo lived in the USA and worked as a consultant for various aviation firms, in particular, Carribes Ashgai.

After the war, Wibo developed the concept of the device, which he called "Sugoret". It was
saw

adjustable disk-like

ny aircraft containing = 2 a a rivers

inside the case is a large RT rda | Rao aml

centrifugal rotor. Air Trouble

the spirit from the environment climbed through the ring "Flying saucer" M. Vibo

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Bacheslav Kozyrev, Mikhail Kazÿÿrev

the air intake, located around the crew cabin, was compressed and ejected in the form of an annular jet from below along the perimeter of the vehicle body. The rotor impeller was rotated by four combustion chambers, which were actually small ramjet engines. By applying this solution, Wibault eliminated the complicated rotor drive transmission commonly used in helicopters using shafts and gearboxes, and minimized the torque from the rotor.

To control this gyroscopically stabilized vehicle in flight, Wiebot proposed an unusual system of four interconnected ballast tanks. By pumping, for example, water from tank to tank, it was possible to change the coordinates of the vehicle's center of gravity and thereby control the vehicle's flight. Stability and yaw control were provided by a large vertical tail and rudder. The pilot was placed in a very cramped cockpit, located on the axis of the apparatus. The view for the pilot through the tiny teardrop-shaped lantern was difficult, which made the landing process quite risky. Wibaud registered his US patent on July 15, 1953, a month before D. Frost of Avro Canada.

"Flying Saucers" by P. Moller

XM-2

In 1962, Dr. Paul Moller built a one-to-sixth scale model of the XM-2 ZKusag (Heavenly Car). Two years later, in his garage in Davis, California, he began building a full-size aircraft. In 1965, the prototype of the craft was completed, powered by two McCulloch engines, which had enough power to allow the XM-2 to hover low above the ground. The first flight tests of the device were successful, a year later Moller supplied more powerful engines.

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Rukatvornon TRP

bodies "Mercury". With the new XM-2 engines, he flew in front of representatives of international journalism at Davis Airport in 1966. In 1968, Moller received his first patent for the XM-2 design.

XM-3

The construction of the next XM-3 “SKusar” apparatus began in 1966. It was a small two-seat passenger aircraft of vertical take-off and landing. One large annular fan, driven by 8 small motors, created

the lift required for vertical takeoff. The cabin was located inside the fan. In 1968, Moller flew an XM-3 in the Earth's zone of influence. This confi Patent No. 3410507

The apparatus was patented by P. Moller (1968) and tented in 1969.

XM-4

Moller's series of devices was continued by the XM-4 "Skusag", also a small two-seat aircraft, which had the shape of a saucer. The construction of the apparatus began in 1970 and ended in 1974. Eight Eÿÿÿÿÿÿ-ÿÿÿÿ engines located around the cabin were used as a power plant.

m200x

Although the XM-4 apparatus proved to be more stable than earlier versions, the lack of power of the power plant did not allow flights outside the Earth's zone of influence. Therefore, with the acquisition of the necessary technologies from the Oshfoata Magipe corporation in 1985,

Mopeg Piegayopia began modifying its engines to increase their power. After the modification of the engines of the XM-4 apparatus in 1987, their power increased by 20% with a decrease in the weight of the engines by 50%. On the device, some minor improvements were made, and this prototype was renamed the M200X "SKusag". In 1989, Moller successfully tested the new apparatus, and on May 10, 1989, he made demonstration flights in front of journalists. Since then, the M200X has completed more than 200 successful flights.

Discoplanes by M. Sukhanov

In No. 11 of the Ogonyok magazine for 1958, an article was published in which the following was reported: “Recently, a strange fast-flying object appeared in the Moscow region at an altitude of about three kilometers. Eyewitnesses claimed that it was a regular-shaped disk of relatively large dimensions. What kind of disk it was and where it came from, no one knew. There were assumptions and conjectures, one more fantastic than the other. Meanwhile, the disk, descending, turned into a rotational, helical motion, then soared upwards, turned over and, rapidly descending, disappeared behind the tops of the trees of the neighboring forest. The author of the article was M. Sukhanov.

The name of Minion Vasilievich Sukhanov is associated with the development of several disk-like devices. After graduating from the Moscow Aviation Institute in the second half of the 1930s, he worked for a long time at TsAGI. Even in his student years, he took part in the development and construction of a discoplan glider. This glider had a wing with a diameter of 3.9 m, a length of 5.3 m, and a height of 2.0 m. In 1950, under the leadership of Sukhanov, a group of Novosibirsk designers developed and built the Diskoplan-1 glider. Flight tests of this airframe, which showed good aerodynamic and operational characteristics at low flight speeds, and observed

Discoplane glider

eyewitnesses in the Moscow region in 1957. In 1960, Sukhanov created the "Discoplan-2" with a wing diameter of 4.9 m, which was built in the NPO. Lavochkin. Later, it was equipped with a solid propellant rocket engine to study the behavior of a diskoplane at supersonic speeds. Both discoplanes were tested by a pilot from the LII Vladimir Vladimirovich Ivanov.

Aircraft "EKIP"

A series of vehicles with an aerodynamically supporting body was developed at ZAO Aviation Concern EKIP under the guidance of Professor L.N. Schukin. The unusual appearance of the apparatus is due to several reasons, among which is the desire to provide a laminar flow around most of the upper surface of the apparatus with the help of a vortex flow control system in the boundary layer, the use of an air cushion take-off and landing device on the lower surface of the apparatus, etc.

EKIP vehicles are multi-mode aircraft that do not require specially prepared runways. They can like

an ordinary aircraft, transporting more than 100 tons of cargo over distances of thousands of kilometers at a speed of 500-700 km / h at an altitude of 8-13 km. They can move near the surface of the Earth and water, using the effect of an air cushion at speeds up to 160 km/h. In addition, these devices are capable of flying in the ekranoplane mode at speeds up to 400 km/h.

b. FLYING WINGS AND TAILLESS

In the prewar years, the Americans closely followed the development of tailless and flying wing aircraft in Germany. After the end of the German gliding championship in 1937, in which the Horten brothers took part on their “flying wings”, a photograph of the N Sh glider (tail number O-10-131) appeared in the New York Times. The caption under the photograph read: "German "flying wing" over Berlin." Some time later, the American company Northrop received a government order to develop an aircraft of this type.

M-1M

Northrop began its research on the creation of "flying wings" in 1939, having built the first experimental machine under the designation M-1M "Jeer". The design of the M-1M was made of metal and wood, the wingtips were bent down, the control surfaces located on them served as ailerons and rudders, and elevators were located in the central part of the wing. Tricycle landing gear, retractable in flight, from the bottom in the rear of the center section there was a non-bolny non-retractable bumper with a small wheel. Initially, the M-1M was equipped with two Gusotype 0-145 engines with a power of 65 hp each, which drove two pusher propellers. In the leading edge of the wing there were air intakes for engine cooling. The landing gear of the aircraft was tricycle, retractable in flight.

The first flight took place on June 3, 1940. Subsequently, the I Usotilo engines were replaced by more powerful Etapkÿp engines (117 kW), conventional straight ones were installed instead of bent ends. As a result, up to

Patent No. 2939648 Patent No. 3020002 H. Fleissner (1960) D. Frost (1962)

During the work, a maximum speed of 322 km / h was reached. In 1945, the aircraft was demonstrated to representatives of the US Air Force, and now the aircraft is in the collection of the US National Aerospace Museum (IMMA).

Characteristics: wingspan - 11.6 m and its area - 27.9 m?, take-off weight - 1360 kg.

M-9M

At the beginning of the war, the command of the US Air Force set before its aviation industry the task of creating an ultra-long-range bomber capable of carrying out raids from the territory of the United States on targets located in Europe or Asia. In September 1941, Northrop was awarded a contract under a competitive program for the development of a long-range flying wing bomber. It was decided to first build four experimental machines on a scale of 1:3 and use them to test the basic configuration of the wing and the control system of the future strategic bomber. The experimental twin-engine aircraft received the designation M-9M "Nushyo Mr" ("Flying Wing"). The first experimental aircraft took off on December 27, 1942. had a different sweep of the front cr

mock center section and consoles. It was equipped with Mepasso C65-4 engines with a power of 275 hp each, which set pusher propellers in rotation. On May 19, 1943, during the next test flight, the car went into a tailspin and crashed, and the pilot died. By this time the car had about 30 flight hours.

The accident that happened to the first machine made it necessary to recheck the results of the study in the wind tunnel of the aircraft spin characteristics, after which a number of improvements were made on the second experimental machine. For the first time this machine took off on June 24, 1943, but soon the flight was terminated due to the failure of the cockpit canopy. The pilot managed to land the plane with minimal damage. The third machine, designated M-9MA, used split flaps on the trailing edge and slots on the leading edge of the wing, it first took off on 28 June. The last M-UMV vehicle was equipped with YegapkNi 0-540-7 engines with a power of 300 hp each, which made it possible to reach a maximum speed of 414 km/h. Testing ended in October 1944. Currently, one of the M-9M prototypes is in the Chino Museum (California).

Characteristics: wingspan - 18.3 m and its area - 45.5 m?, aircraft length - 5.4 m, fuel capacity - 378 l, takeoff weight - 3175 kg, service ceiling - 6500 m, flight duration - 3.2 hours.

XB-35

After completing the tests of the M-1M and M-9M experimental aircraft, the company began to develop a heavy four-engine bomber V-35. It was supposed to build two prototypes of the KhV-35, thirteen pre-series UV-35s and two hundred serial V-35s under the contract.

The construction of two prototypes of the KhV-35 was completed after the end of the war. The aircraft was equipped with coaxial pairs of four-blade pusher propellers.

counter-rotating comrades mounted on the shafts of K-4360 engines with a power of 3000 hp each. The system of controls consisted of elevons and rudders in the form of split flaps at the ends of the wing; take-off and landing flaps were located in the center section. In the leading edge of the wing at the tips there were slots closed by flaps. When the speed decreased to a critical value, the wings opened automatically and provided a smooth flow around the wing. The chassis is three-post, the A-pillar folded to the left during cleaning. The crew of the aircraft consisted of nine people and was located in two

sealed cabins. The armament consisted of machine guns of 12.7 mm caliber, located as follows: the upper and lower turrets on each wing console - two machine guns, the upper and lower turrets of the center section - four machine guns, the tail turret - four machine guns.

The XB-35 made its first flight on June 25, 1946 at Hawthorne. However, problems with coaxial propeller gearboxes soon forced us to switch to a scheme with a single propeller on the engine shaft, which significantly worsened the flight characteristics of the aircraft. The first pre-production copy of the YV-35 already had single propellers. However, although the construction of 13 pre-production aircraft was started, due to changes in the requirements for the strategic bomber, the XV-35 program was terminated.

Characteristics of the XB-35: wingspan - 52.4 m and its area - 418.0 m?, aircraft length - 16.2 m, height - 6.1 m, empty weight - 40,620 kg, normal takeoff weight - 81,650 kg, maximum takeoff weight - 94,800 kg, bomb load - 23,165 kg (maximum) and 18,700 kg (normal), maximum speed - 630 km/h, cruising speed - 294 km/h, range at a speed of 294 km / h and 7200 kg of bombs - 13,120 km, practical ceiling - 11,800 m.

YB-49

After the termination of the KhV-35 program, the remaining experimental machines were converted into the YV-49 jet bomber, the power plant of which consisted of eight 135-A-5 turbojet engines with a thrust of 1870 kg each. This aircraft was offered to the US Air Force as a strategic bomber. Unlike the XB-35, the new aircraft had two upper and two lower keels on each half of the center section.

The first flight of the UV-49 took place on October 21, 1947. During flight tests, a maximum speed of 835 km / h was reached, but the flight range was only 5200 km against 16,100 km according to the terms of reference. On April 26, 1948, the aircraft made a nine-hour test flight, six of which flew at an altitude of 12,190 m. . On February 23, 1949, during the flight of the first machine, three left engines and one right engine caught fire. The crew managed to land the plane urgently. The restored aircraft continued the test program, but on March 15 of the following year, the landing gear was destroyed on takeoff, and the aircraft caught fire.

After the contract for the development of a strategic bomber was annulled, the third copy of the aircraft was converted into a six-engine YKV-49A reconnaissance aircraft, the first flight of which took place on May 4, 1950. During flight tests, a maximum speed of 885 km/h and a range of 5750 km. However, the US Air Force decided to abandon the reconnaissance - "flying wing" and adopted the BB-47E aircraft of the normal scheme. In 1953 UVV-49A was dismantled and destroyed.

Characteristics of UV-49: wingspan - 52.4 m and its area - 418.0 m2, aircraft length - 16.2 m, height - 6.1 m, empty weight - 44,240 kg, maximum take-off weight - 96,842 kg , bomb load - 7258 kg, maxi

low speed - 835 km / h, cruising speed - 676 km / h, range - 5750 km, service ceiling - 12,820 m.

MX-324/334

During the war, the Germans had a program to develop rocket-powered aircraft. Similar aircraft were developed by the Americans. In September 1942, Northrop released a feasibility study for a rocket-powered interceptor. Soon the company received a contract for three aircraft: two MX-334 airframes and one MX-324 Voske Mnipe (Rocket Wing) airframe with a rocket engine. All three devices were to become prototypes for the experimental XP-75 aircraft. The structure of the airframes was completely wooden, with the exception of the central section of the fuselage, which was made of a metal pipe. The pilot was lying down in the cockpit in order to better withstand high G-forces when maneuvering the apparatus. Although initially designed as a pure flying wing with no vertical surfaces, it was later decided that a vertical tail would be necessary at higher speeds. Accordingly, a plywood keel on braces was added.

The first glide flight of the MX-334 took place on October 2, 1943. The first flight of the MX-324 with the engines running took place on July 4 of the following year. The R-38 tug aircraft lifted it to a height of about 2500 m. Having uncoupled from the tug, MX-324 turned on the rocket engine and made a four-minute flight with the engine running, the landing was successful. Flight tests showed that the aircraft's flight characteristics were good.

Characteristics of the MX-324: one Aegoe! KhSAT-200 with a thrust of 90 kg, a wing span of 9.8 m and an area of 22.7 m?, an aircraft length of 3.7 m, and a maximum speed of 483 km/h.

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Handmade UFO

XP-79

As a power plant for the experimental aircraft KhR-79, it was originally planned to use a liquid-propellant rocket engine operating on fuming nitric acid and monoethylaniline. Since these liquids are extremely toxic and corrosive, special measures were required to protect both the aircraft and the pilot from their effects in case of damage to military equipment. The aircraft used magnesium skin with a thickness of up to 1.9 mm in some places. The pilot in the cockpit was lying down. Tests of two modifications of the aircraft - XP-79 and XP-79a - showed that the LPRE thrust of 900 kg is not enough to ensure satisfactory flight characteristics of the aircraft. Therefore, it was decided to use two Meziprotsve 19-B (330) turbojet engines with a thrust of 522 kg each as a power plant, this modification of the aircraft received the designation XP-79V. It was assumed that the XP-79ÿ "Kat Mipr" ("ram wing") would be used as a ram fighter. The aircraft had square-section air intakes; in addition, two vertical keels were installed on top of the rear fuselage. The chassis was made four-post, i.e. the similar chassis of the NUP aircraft of the Horten brothers. On September 12, 1945, the first flight of the XP-79B aircraft took place. 15 minutes after the start of the flight, the plane went into a tailspin and crashed, the pilot died. After this catastrophe, the XP-79B program was terminated.

Characteristics of the XP-79: one Koÿÿÿÿÿ engine with a thrust of 900 kg, a wing span of 11.0 m and an area of 23.7 m², an aircraft length of 3.5 m, a maximum speed of 805 km / h. |

Characteristics of the ÿÿ-79ÿ: one Koyuye engine with a thrust of 900 kg, a wingspan of 11.6 m and an area of 25.8 m2, an aircraft length of 3.6 m, and a maximum speed of 805 km/h.

Characteristics of ÿÿ-79ÿ: two engines 19-ÿ (730) cha

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goy 522 kg each, wingspan 11.6 m and area 26.8 m2, aircraft length 4.3 m, maximum takeoff weight 3932 kg, maximum speed 805 km/h, range 1593 km.

Cruise missile JV-1

In July 1944, Northrop received a contract to develop the]V-1 cruise missile (project MX-543), similar to the German V-1 missile. As a power plant, two General Electric CE V1 turbojet engines with a thrust of 181 kg, installed in the fuselage, were used. In the root parts of the wing there were two containers with 900-kilogram bombs. To test the aerodynamics of the rocket, one of the JV-1s was made in the form of a manned glider, and testing of the glider began in August 1944.

In December of the same year, the first copy of the JV-1 "Ba" ("Bat") rocket was ready for launch. The rocket was launched using a jet sleigh, accelerating along rails 150 m long. However, a second after the launch, JB-1 lost control and crashed. The accident was caused by an incorrectly calculated starting angle of the elevons, but the JB-1 program was subsequently stopped, mainly due to the fact that the characteristics of the engines and their reliability does not match

Patent No. 3189929 Patent No. 3237888 R. Lemberger (1965) W. Willis (1966)

met the requirements of the technical specifications. The program was reoriented to the use of pulse jet engines, the remaining JV-1 specimens were modified into JV-10 rockets.

Characteristics JB-1: wingspan - 8.64 m, aircraft length - 3.21 m, height - 1.38 m, takeoff weight - 3211 kg, bomb load - 2x900 kg, maximum speed - 727 km / h, range - 1080 km.

Cruise missile JV-10

After the JB-1 program was ended due to a failure with the turbojet engine, the power plant was changed in the remaining copies of the JB-1, and the upgraded vehicles received the designation JB-10. Pulsating engine "Rota" R] 31-E-1 was installed inside the fuselage along its axis. Since the fuselage had a larger diameter than the engine, this made it possible to organize a flow of cooling air between the fuselage skin and the engine housing. The protruding bomb containers were removed, and two warheads were placed in the root parts of the wing.

Like the JV-1, the JV-10 was to be fired from a safe distance. It was a low-precision weapon intended for the planned invasion of Japan. The missile used a simple program guidance system, which, after flying along a given course and at a given distance, gave a signal to the missile to dive. The first flight of the JB-10 took place in April 1945, but ended unsuccessfully. In fact, out of 10 JB-10 launches, eight were unsuccessful, and only two launches were considered partially successful. Due to problems with testing, as well as the fact that the need for such a weapon disappeared, the JB-10 program was completed in January 1946.

Characteristics JB-10: wingspan - 8.89 m, aircraft length - 3.65 m, height - 1.47 m, takeoff weight - 3270 kg, bomb load - 2x825 kg, maximum speed - 685 km / h, range - 300 km.

X-4

After the war, the Northrop company studies captured German aircraft and builds an experimental Kh-4 Vashat aircraft. The basis of its design, as well as the English aircraft O.N. 108, German projects were laid down [4 R.15 and Me R.1111. In total, two copies of the X-4 were built. The first flight took place on December 15, 1948, after 30 test flights at the firm, both aircraft were transferred to MACA for further research. Currently, one machine is on display at the Air Force Museum in Dayton, and the second is at the Air Force Academy in Colorado Springs.

Characteristics of X-4: two turbojet engines ÿ30-% No. E-7-9, wingspan - 8.18 m, aircraft length - 7.1 m, height - 1.47 m, maximum speed - M = 0.89.

"Flying Triangle" M. Vibo

Michel Vibault, already mentioned, patented the design of a triangular “flying wing” for vertical take-off and landing. The basis of the power plant of the device was the engine of the same type as in its “flying saucer” described above. During the transition to level flight, air was passed into the tail nozzles, producing horizontal thrust. The aircraft was controlled in hovering mode using a system of ballast tanks, while in level flight, by conventional aerodynamic controls.

$C.1

The 8C.1 tailless aircraft developed by Short became the first VTOL aircraft in England. The company received a contract from the British Ministry of Supply for the construction of two experimental machines.

The aircraft had a low delta wing and tricycle landing gear. The power plant of the aircraft consisted of five BB.108 turbojet engines with a thrust of 966 kg each.

Ire Nu 2;

$C.1 in the parking lot

"Flying Triangle" _— | $C.1 in flight M. Vibo

Four lifting engines were installed vertically in the fuselage in pairs one after another. The fifth engine was installed in the rear fuselage to create horizontal thrust. The first example of the $C.1 made its first conventional take-off and landing flight on April 2, 1957, with a single tail engine installed. The second aircraft, equipped with lift engines, made a tethered flight in May of the following year. The first test with the transition from vertical takeoff to horizontal flight took place in April 1960. In June 1963, the second aircraft was damaged in an accident, while the pilot died. The plane was soon restored and started flying again. After the end of the test program, both cars were transferred to museums: one to the Science Museum, and the other to the Ulster Transport Museum.

Characteristics 5ÿ.1: wingspan - 7.16 m, aircraft length - 9.11 m, maximum speed - 396 km / h, maximum take-off weight - 3651 kg, range - 241 km.

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Bachestse Kozyrev, Mihsil KOZY DIEE

E-117A

The program of the E-117A NouIFamK (Nighthawk) aircraft was developed under the control of the Aeronautical Systems Center (Agopausa|Suÿgetÿ Sepger), located at the Wright-Patterson Air Force Base in Ohio. The decision to produce the E-117A was made in 1978. In accordance with the contract issued to Lockheed, the production of aircraft was to be arranged at the Skip Mogk5 plant in Burbank, pc. California. The first flight of the aircraft took place in 1981, in total, the company delivered 59 stealth fighters to the Air Force between August 1982 and July 1990. Five additional test aircraft belong to
companies.

E-117A fighters were originally equipped with the 4450th tactical group, which reached combat capability in October 1983. 37th Fighter Wing Tactical Group at Tomapaha Test Range, 57th Fighter Wing at Nellis AFB, 410th Flight Test Squadron at Palmdale, and 53rd Wing Test Group at Eglin AFB. The stealth fighter was first shown publicly at Nellis Air Force Base in April 1990. Since May 1992, E-117A fighters have been part of the 49th Air Wing (49E\\), based in Holloman.

Combat use of the E-117A took place for the first time in December 1989 during an operation in Panama. During Operation Desert Storm (January-February 1991), the E-117A aircraft was the only jet aircraft in the coalition forces that could strike targets located in densely populated areas of Baghdad. Although only 36 of these fighters were involved in the coalition forces out of a total of 1900 fighters and bombers, on the first day of the war they completed more than a third of the battle.

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E-117

E-117

A-17 in flight

Vncheslov Kazldrev, Mikhail Kozyrev

out flights. In total, during the war, the E-117A fighters completed more than 1250 sorties, dropping 2000 tons of bombs and flying more than 6900 hours.

Since the beginning of hostilities against Yugoslavia, NATO aviation has had 12 E-117A fighters from the 8th Expeditionary Squadron from the Holloman air base. After one of the aircraft was shot down by the Yugoslavs on March 27, 1999, the Americans deployed 12 more E-117A aircraft to Yugoslavia.

Characteristics of the E-117A: wingspan - 13.3 m, aircraft length - 20.3 m, height - 3.8 m, take-off weight - 23,625 kg.

AT 2

The B-2 stealth bomber program was launched in 1981. In 1987, the Air Force received guarantees for the purchase of 132 B-2 aircraft, primarily for strategic bombing missions. With the collapse of the Soviet Union, the emphasis on development

The B-2 program was changed, the number of purchased aircraft was reduced to 21 (20 combat aircraft plus 1 test aircraft for further modernization).

The first B-2 aircraft was publicly displayed on November 22, 1988 in Palmdale, Calif., and first flew on July 17, 1989. The main contractor responsible for the overall systems design and construction of the aircraft was Northrop Grumman, the subcontractors were Boeing, General Electric, Hughes and Vought. The Boeing plant in Seattle produced the 15 m long central sections for the weapons bay, as well as the 20 m long outer wing sections, which housed the fuel tanks. The completed sections were transported to Palmdale on C-5 military transport aircraft. for final assembly.

Since June 1996, three of the six prototype aircraft

Tii continue to fly as part of a flight test program at Edwards Air Force Base (California). On May 6, 1992, Northrop-Grumman received the National Aeronautics Association's annual award "for the greatest achievement in aeronautics or astronautics in America demonstrated in actual use in 1991."

All B-2 aircraft are part of two squadrons of the 509th Bomber Wing (Whiteman Air Force Base, 112 km southeast of Kansas).

Characteristics of the B-2: wingspan - 52.12 m, aircraft length - 20.9 m, height - 5.1 m, take-off weight - 152,635 kg, service ceiling - 15,152 m.

Aircraft "VgÿShapiÿ Wiggaga"

Starting from 1990, the aircraft, which received the code name "Brillant Viggagd" ("Brilliant Buzzard"), was seen near Edwards Air Force Base (California). Reports of five sightings of this aircraft by various people were published in "Auiaiiiop Uek apÿ Strase Tespoÿovu". Witnesses report a large, pale gray aircraft with a fighter-type canopy, underwing engines, and canards that can be retractable. The following distinguishing features are indicated:

- The fuselage, resembling the fuselage of the aircraft 5B-71A.

— Large delta wing with rectangular underwing engines.

- Vertical surfaces are installed on the wingtips.

- Dark leading edges and dark rectangular engine exhausts.

— Prominent fuselage protrusion above the large delta wing.

— Some observers saw a low-lying PGO, and some did not observe it at all.

- Some observers heard a rumbling sound when the aircraft was flying at low speeds.

— The upper and lower surfaces of the wing are light in color with dark leading and trailing edges.

A-12

The stealth subsonic attack aircraft A-12 "Avenger" ("Avenger"), designed to replace the Navy A-6 and Air Force E-111 aircraft, was developed by General Dynamics (Fort Worth, Texas) and McDonnell » (St. Lewis, Missouri). The design of the aircraft was supposed to use a large amount of structural materials. However, contrary to expectations, this did not lead to a reduction in the weight of the structure. The weight of the aircraft exceeded by 30% the technical requirements for weight characteristics for aircraft based on aircraft carriers. The A-12 project was canceled in 1991, presumably due to high cost, as well as the end of the Cold War and the collapse of the Soviet Union. According to some estimates, between $2 billion and $4 billion was spent on the project. A full-scale model of the A-12 aircraft was first publicly shown on June 29-30, 1996 in Fort Worth.

Characteristics of the A-12: wingspan - 21.4 m, aircraft length - 11.3 m, height - 3.5 m, empty weight - 17,690 kg, takeoff weight - 36287 kg, speed - 933 km / h, range - 1481 km.

A-17/EB-119

The A-17 aircraft (sometimes referred to as the EB-119) is regarded as the fourth generation of stealth aircraft, it is a further development of the E-23 fighter and will have to replace the E-111 fighter-bomber. The existence of the aircraft is assumed, but not officially confirmed. There are no official images of the aircraft,

only two

times he was seen in the area of the air base "Bascomb" in England and the air base "Cannon" (pc. New Mexico), USA.

Two more events indirectly confirm his existence.

calling:

• In September 1994, an unusual aircraft, similar to the A-17, was seen in the area of Amarillo, Texas. The plane was dumping fuel in flight, preparing for an emergency landing. The radio conversations of the pilot (call sign Omega) were recorded, who reported about the malfunctions. The unknown aircraft was escorted by two E-111s.

• A man named Steve Douglass videotaped the flight of two unusual triangular craft. He assumed that they were A-17s, but also admitted that there could be E-117s.

"Viga from Rgeu"

The experimental aircraft "Wood og Rgey" ("Bird of Prey") developed by the Boeing company, apparently, was intended to work out the concept of supersec

A-17 (drawing)

mounted fighter or tactical bomber, as well as some features of combat unmanned aerial vehicles. This stealth aircraft is designed to perform combat

tasks not only at night, like the E-117 and B-2, but also during the day.

Recently, the plane was shown officially. Observers noticed that the skin of the aircraft in front of the engine air intake was painted white. This was not done by chance, the white patch seems to displace the shadows from the input device, while being part of a complex aircraft camouflage scheme. Officially, Boeing and the Air Force only talk about testing “new technologies with low telltale signs.” However, according to some analysts, active methods of masking are also used, for example, the use of lamps or fluorescent panels to eliminate heat. F. Elliot's jet aircraft (1971) also uses a new technology to reduce its radar performance, which consists in the use of flexible coatings applied to movable controls. These coatings cover gaps that could cause unwanted reflections picked up by radars.

Bird of Prey has made 38 flights since early 1996. No one can say where the flights took place, but the most likely guess is Area 51, a secret US Air Force flight test center in Nevada. The bird of prey, equipped with a single turbojet engine, has a top speed of 483 km/h and a maximum altitude of about 6,000 m.

were "normal, but somewhat slow". Although the aircraft's primary purpose was to demonstrate stealth technology, Boeing also demonstrated the ability to build aircraft prototypes quickly and cheaply. A small number of carbon-fiber parts were used in the design of the aircraft; it had a simple manual flight control system without the use of a computer.

X-35

The X-35 "ÿ5R" aircraft was created as part of the program of the joint attack fighter "ÿosh! Swift Poÿeg, led by the US Department of Defense Advanced Research Projects Agency (ODARA), as a replacement for the Harriers, using stealth technology and improved methods of generating lift. When the program was opened, it was believed that the only way to simultaneously meet the needs of the Marine Corps in the creation of a promising short takeoff and vertical landing aircraft, the needs of the Navy in a long-range stealth strike aircraft and the desire of the Air Force to have an aircraft like the E-16, with a higher nose degree of invisibility, lies in the implementation of the general program.

Initially, two firms participated in the competition: Northrop-Grumman and McDonnell-Douglas. Northrop-Grumman presented a design for a canard aircraft with lifting engines. The McDonnell-Douglas project was similar to the UE-23 with a front horizontal tail, the vertical component of the lifting force was to be created by a fan. But then both firms joined forces and proposed a new project, which resembled the E-101 aircraft with a Y-tail and lifting engines.

In 1996, the leadership of the JURE program chose Boeing and Lockheed Martin to continue the competition. Boeing aircraft under the designation

Patent No. 3697020 Patent No. 3871602 R. Thompson (1972) K. Kissinger (1975)

The Kh-32A took off for the first time on September 19, 2000. The Lockheed Martin aircraft under the designation Kh-35A made its first flight a little later, but reached supersonic speed in the second test flight. In early 2001, the X-35A was fitted with a fan to generate lift, and a naval version of the X-35C was built for testing purposes. On October 26, 2001, a contract was signed with Lockheed Martin for the construction of an attack aircraft, the serial designation of which will be E-35. The arrival of E-35 aircraft into service is expected after 2008.

Kh-43

The X-43 aircraft was developed as part of the MAZA pilot program called Nureg-X. This program is intended to demonstrate a new engine concept for a future hypersonic aircraft or reusable space vehicles. This hypersonic ramjet engine was supposed to ensure the flight of the device at a speed five times the speed of sound. The first flight of the device was scheduled for mid-2001. The first stage of research, designed for six years and costing approximately 185 million dollars.

dollars, included the study of ramjet, hypersonic aerodynamics of the device and development of design methods. The beginning of the stage was planned for October 2001 within the perspective space program of ASTP Center named after A.I. Marshall. Three X-43 unmanned aerial vehicles are being developed by McGoSgay, shs. Langley. Each vehicle must fly only once, starting from the middle of 2001 - the first and second vehicles at speeds corresponding to M=7, and the third vehicle at M=10.

Each X-43 will be launched using an Oofna! Sciepsis Corr., which is to be launched from a B-52 carrier aircraft at an altitude of 5,790 m to 13,106 m (depending on the mission). The rocket will accelerate the vehicle to a predetermined speed (M=7 or M=10) at an altitude of approximately 30,480 m, where it will separate from the booster. Immediately after separation from the booster, the vehicle's ramjet engine will start, which should work for 10 seconds, the flight will be controlled by the on-board computer according to a previously entered program. At the end of the flight, the device should fall into the Pacific Ocean in the area of the Navy test site near the southern coast of California.

X-44

The fighting in Afghanistan revealed the US Air Force's need for a high-speed medium bomber to replace the P-111. Lockheed-Martin is studying the possibility of modifying the E-22 Varyug fighter into the EB-22 bomber for this purpose. Some issues of future aircraft control are being investigated with the help of an experimental Kh-44 aircraft.

X-44 "MAMTA" (Miy-Akhÿs Mo Tai Aigsgay) is a "flying wing" aircraft designed to develop the concept of aircraft flight control by means of thrust vector deflection
engine.

Mo Patent 3933325 Mo Patent 3073551 D. Kazlin (1976) D. Bowsersox (1963)

Backpack engine project

Handmade M/I

X-45

The Boeing X-45 unmanned aerial vehicle is intended for strike operations. The Americans in Afghanistan used for this purpose UAV KO-1 "Rgedayug" ("Predator"), armed with "Neyge" missiles. By order of the CIA, this device was used in operations to eliminate the leaders of the Taliban and Al-Qaeda. KO-1s were also used to illuminate targets during attacks with guided laser bombs from E / A-18 aircraft.

The X-45 represents the next step in the development of strike UAVs, it will carry two SVO-32 bombs. Today's X-45A uses a Nopeute 2124 engine. A system is being developed that will allow the vehicle to refuel in flight. Two experimental X-45A vehicles are being tested at Edwards Air Force Base, in case of successful tests, the X-458 device, a prototype of serial vehicles, will be built. The flight missions of serial UAVs will include attacks on well-protected targets and suppression of the enemy air defense system.

X-47

The US Navy, following the Air Force, issued technical requirements for the development of its own unmanned strike vehicle (OSAU). Unlike the Kh-45, the naval version of the OSAU, designated Kh-47, must land on an aircraft carrier. The X-47A "Perasis" ("Pegasus") unmanned strike vehicle was developed by Northrop-Grumman on the instructions of the US Department of Defense Advanced Research Administration (PAERA) and the Navy. It is designed to strike at air defense systems, it is structurally made according to the "tailless" scheme. The spacecraft is controlled by two elevons and four flaps (two on top of the fuselage and two on the bottom), as well as with the help of a two-dimensional jet nozzle. full size model

Vyaechistlm Koznriy, Mihstt Kozyrshyuye

The paratha was introduced on February 26, 2001. The model underwent 500 hours of wind tunnel testing and 300 hours of computer simulations. The first flight took place on February 23, 2003 at the Naval training ground in China Lake (California). The twelve-minute flight was successful with a simulated landing on an aircraft carrier.

Characteristics of the X-47A: power plant — JT150-5S turbofan engine with a thrust of 1451 kg, wingspan — 8.5 m, aircraft length — 9.1 m.

7. AIR AND SPACE VEHICLES

VU bomber

In 1966, an unknown aircraft exploded in flight over one of the desert regions of Australia. The wreckage of the apparatus was collected by the military and transported by plane to the United States. Since no country reported the loss of its aircraft in this area, and the haste with which the army units searched for and collected the debris aroused certain suspicions, ufologists became interested in this incident. Among the local very small population, rumors spread that a “flying saucer” with aliens had crashed in this place. Only in the late 90s, the veil of secrecy surrounding this incident was lifted.

In the late 1950s, a commission was formed at MASA to deal with research in the field of manned space flights. In the summer of 1959, a group of specialists led by G. Strass recommended that work be started immediately on second-generation multi-seat spacecraft capable of controlled descent from orbit. Requirements have been formulated

to the spacecraft for the flight to the Moon, and the foundations of the "lunar program" were developed. However, within the framework of this program, in addition to the actual work on the manned lunar expedition, there were two more areas financed by the Pentagon: maneuverable manned descent vehicles and manned orbital stations. Different designs of descent vehicles were considered, but on September 28, 1959, a member of the group A. Kelet presented at a meeting of the commission some considerations in favor of developing a disc-shaped spacecraft called GKU . By the way, in 1963 he and two co-authors for

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Byacheestsyu Kazlnrev, Mikhail Kalirve

Mau 21, 1963 A. a KENET ETA, 3,090,580 Mau 12, 1964 No. 8. ROT STA. 3132425 RACE AKO ATYOCHENIYUH RE-BIKE TODOR 2008 orar 15, willow from the sky 1

Patent No. 3090580 A. Keleta, Patent No. 3132825 R. Postle, D. Hesson and W. Petinia D. Michaels and C. Henderson (1963) (1963)

patented the design of an aerospace return vehicle of a similar shape. The research centers of Langley, Ames, and Lewis, as well as several contractors, aviation firms, joined the work on the creation of controlled descent vehicles.

Among these contractors was the company "North American Aviation", in the Los Angeles branch of which work began on the creation of orbital-based aircraft with subsequent controlled descent. The work was carried out under a contract with the US Air Force, the coordination of work was carried out by specialists from the Wright-Patterson Air Force Base (Dayton, Ohio), where former Nazi scientists and engineers who were relocated there, who during the Second World War were related to rocket and disk technologies.

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ukettasmnÿne NGU

The aim of the work was to create an experimental aerospace vehicle, launched into orbit using a launch vehicle, which would be capable, after completing the task, to carry out an independent descent from orbit and land in a given area. Four versions of the device were developed. Two of them were winged vehicles: 1A - a 5-seat reconnaissance aircraft capable of being on combat duty for six weeks, and 1B - a 2-seat reconnaissance aircraft for combat duty for one week. The third was a 2A ballistic apparatus, also called VKU (VaScis Keepigu Mesce), with a duration of six weeks on combat duty with a crew of 5 people. The fourth apparatus was a “flying saucer” designated ZA or KU, a 4-seat bomber capable of being on combat duty for six weeks in an orbit with an altitude of about 480 km.

The SVU bomber was supposed to become an integral part of the combat orbital system, which, in addition to it, should also include an unmanned satellite with a set of various weapons. It was assumed that YHVU would simultaneously perform the functions of a bomber, control center for an unmanned satellite, and in the

ahh.

G.VU-bomber GKU-reconnaissance

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Ejetaen ten Kazyrev, Mikhail Kazyrnee

tea needed and its repair. Delivery of the JCS into orbit was assumed using a multistage launch vehicle. Two versions of the launch vehicle were considered: one with a conventional chemical fuel propulsion system and one with a nuclear propulsion system.

As a carrier rocket with a conventional liquid-propellant rocket engine, various versions of the Saturn rocket were considered, work on which was carried out at the Space Flight Center. Marshall in Huntsville. The work was supervised by W. von Braun. While working in Huntsville, von Braun and his team developed the Redstone and Jupiter rockets for the US Army. After the launch of the Soviet satellite in 1957, the top leadership and command of the United States were almost in a state of shock and demanded that American scientists and designers immediately create a powerful launch vehicle. In October 1961, the American Saturn 1 rocket, designed under the leadership of von Braun, took off for the first time. To launch disk vehicles into orbit, a variant of the Saturn S-2 rocket was considered, which could simultaneously launch several vehicles into space. High-power nuclear rocket engines were developed in the 60s under the MEKUA program.

The disk-shaped form of the KU apparatus was chosen by the developers taking into account the following considerations. Firstly, the efficiency of using the internal volume of the disk is higher than that of conventional cylindrical devices. Secondly, computational and experimental studies have established that the leading edge of the disk during descent from orbit heats up approximately 30% less than the nose cone of a conventional vehicle having a hemispherical or conical shape. Thirdly, the problem of high-intensity heating of the leading edges of the aerodynamic control surfaces, which is present in vehicles of conventional design schemes, is eliminated. Fourth, the disc has excellent rigidity and anticork

characteristics and has some advantages over conventional aircraft in flights with high angles of attack.

The GCU had a diameter of 12.2 m and a height in the center of 2.29 m. The weight of the empty apparatus was 7730 kg, the maximum weight of the apparatus put into orbit was 20,411 kg, the payload weight was 12,681 kg, including the weight of rockets - 3650 kg. The apparatus contained: a rescue capsule, a habitation compartment, a working compartment, an armament compartment, the main propulsion system, a power plant, oxygen and helium tanks. On the trailing edge of the IC, there were vertical and horizontal control surfaces, with the help of which, after leaving the orbit, a controlled descent in the atmosphere was carried out. Aircraft-type landing was carried out on a retractable four-post ski chassis.

The JCU apparatus was arranged as follows. The crew during the launch of the apparatus into orbit and its descent from orbit had to be located in a wedge-shaped capsule in front of the apparatus. The purpose of the capsule is to control the ECU apparatus from it in a normal flight and rescue the crew in case of an emergency during takeoff and landing. For this purpose, the capsule contained four seats for crew members and a control panel, as well as emergency life support and power supply systems. On top of the capsule there was a hatch through which the crew got into the capsule before launch. In an emergency, the separation of the capsule from the structure of the main apparatus was carried out by undermining the pyrobolts, after which a solid-propellant rocket engine with a thrust of about 23,000 kg, located in the rear part of the capsule, came into operation. The operating time of the emergency engine was 10 seconds, which was enough to take the capsule away from the abandoned apparatus to a safe distance, while the overload did not exceed 8.5 2. The stabilization of the capsule after separation from the main apparatus was carried out using four drop-down

tail surfaces. After stabilization of the capsule, its nose cone was dropped and the parachute located under it opened, providing the capsule's descent rate of 7.6 m/s.

In the normal landing mode of the GCU, i.e. during an aircraft landing, the nose fairing of the capsule moved down and opened a flat slit porthole, thereby providing a view to the pilot. This nose window could also be used for forward viewing while the GCU was in orbit. To the right of the capsule, there was a living compartment for the crew, and to the left, the working compartment of the vehicle. These compartments were accessed through the side hatches of the capsule. The side hatches were sealed around the entire perimeter. During the emergency separation of the capsule from the main apparatus, the sealing devices were destroyed. The length of the capsule was 5.2 m, width - 1.8 m, empty weight - 1322 kg, estimated weight together with the crew in the emergency landing mode - 1776 kg.

The living compartment was intended for the crew to rest and maintain their physical condition at the required level. On the rear wall of the compartment there were three sleeping shelves and a sanitary cabin. The space at the bottom of the shelves was used to store crew members' personal belongings. Along the side, in front and to the right, there were simulators for physical exercises, a block for storing and preparing food, and a table for eating. In the corner formed by the rear wall of the compartment and the right wall of the escape capsule, there was a sealed airlock that allowed exit from the vehicle into outer space or into the weapons compartment.

In the working compartment, located on the left side of the apparatus, there was a command console with communication and tracking equipment and a weapon operator’s console, from which both the launch of own missiles and the remote control of the weapon of the unmanned satellite were carried out. In the corner of the compartment there was also a gateway for access to the open

space or into the weapons bay. In normal mode, the air pressure in the capsule, living and working compartments was maintained at 0.7 atmospheres so that the crew could work and rest without spacesuits.

The non-pressurized weapons compartment occupied almost the entire rear half of the MCC; its volume was sufficient both for storing four missiles with nuclear warheads and for crew members to work in it in order to test and prepare missiles for launch. The rockets (two on the left and two on the right) were mounted on two parallel rails. A manipulator was located between the pairs of missiles along the longitudinal axis of the vehicle. There was a hatch above it, through which, with the help of a manipulator, the missiles were taken out one by one and fixed on the back of 1.KU in a combat position. All work on the installation of missiles in a combat position was carried out manually. In the event that before the combat use of the missiles, the MCC received an order to urgently return to the ground, the missiles were separated from the main apparatus and left in orbit for subsequent use. Abandoned missiles could be launched remotely or picked up by other vehicles, after which they could be used normally.

The regular GKU set also included a shuttle craft designed for two people. It was stored in the weapons compartment and was intended to visit an unmanned satellite for the purpose of its maintenance and repair. To move in space, the shuttle had its own LRE with a thrust of 91 kg.

Nitrogen tetroxide M.O. and hydrazine No.,H. In addition, the same fuel was used in the rocket engines of the unmanned satellite. The main stock of fuel (4252 kg) was stored in the tanks of the GCU, the stock of top

The weight in the shuttle was 862 kg, in the unmanned satellite - 318 kg, in rockets - 91 kg. The shuttle refueled

as the development of its fuel supply from the main unit. The shuttle fuel was used to refuel the tanks of the unmanned satellite during maintenance and repair work. The fuel systems of the missiles in combat mode were constantly connected to the satellite's tanks. If the missiles were fired or disconnected for maintenance or repair, then the pipelines at the disconnection point were blocked by automatic valves to prevent fuel leakage. The total fuel leakage for six weeks of combat duty was estimated at 23 kg.

IKU had two separate power supply systems: one to ensure the operation of consumers during the launch into orbit and descent from orbit, the other to ensure the normal functioning of all systems of the device during 6 weeks in orbit.

The power supply of the apparatus in the modes of insertion into orbit and deorbit was carried out using silver-zinc batteries, which made it possible to maintain a peak load of 12 kW for 10 minutes and an average load of 7 kW for 2 hours. The weight of the battery was 91 kg, its volume did not exceed 0.03 m3. After the mission was completed, it was planned to replace the spent battery with a new one.

G.VU with a deployed main control unit with a folded concentrator concentrator

7193

Armed MG

The power plant for the orbital phase of the flight was developed in two versions: on the basis of a miniature source of atomic energy and on the basis of a solar energy concentrator of the ZipYo\eg (Sunflower) type. The total power of consumers during operation in orbit was 7 kW.

In the first variant, it was necessary to provide reliable radiation protection for the crew on the apparatus, which was a rather complicated problem. The nuclear power source was supposed to be activated after entering orbit. Before the spacecraft was descent from orbit, the atomic source was supposed to be left in orbit and used in other launch vehicles.

The solar power plant had a weight of 362 kg, the diameter of the solar radiation concentrator, which was deployed in orbit, was 8.2 m. The orientation of the concentrator to the Sun was carried out using a jet control system and a tracking system. The concentrator focused solar radiation on the receiver-heater of the primary circuit, in which mercury was the working medium. The secondary (steam) circuit had a turbine, an electric generator and a pump installed on the same shaft. Waste heat from the secondary circuit was thrown into outer space using a radiator, the temperature of which was 260°C. The generator had a power of 7 kW and generated a three-phase current with a voltage of 110 V and a frequency of 1000 Hz.

When leaving the orbit, the spacecraft is subjected to intense heating. Calculations showed that the temperature of the lower surface in this case should reach 1100°C, and on the upper surface, 870°C. Therefore, the developers of the GCU took measures to protect it from exposure to high temperatures. The apparatus wall was a multilayer structure. The outer skin was made of heat-resistant alloy E-48. This was followed by a layer of high-temperature thermal insulation, reducing

temperature up to 538°C, followed by a honeycomb panel made of nickel alloy. Then came low-temperature thermal insulation, which reduced the temperature to 93°C, and then an inner lining made of aluminum alloy. The forward edge of the spacecraft with a radius of curvature of 15 cm was covered with graphite thermal protection.

The company has also developed a 5-seat modification of the EKU, designed to study the characteristics of disk descent vehicles. In case of successful tests, it was supposed to be used for reconnaissance purposes. The device had two central keels: the upper one with the rudder and the lower one, which was dropped before landing. Crew jobs and places to rest were located in one, front, compartment.

In 1975, the Australian D. Fraser, near his farm, located south of Brisbane, accidentally found a fragment of the apparatus that crashed in 1966. After some time, the fragment fell into the hands of D. Smith, a businessman from Sydney. Smith, assuming that the fragment belonged to an alien spacecraft, gave it to the University of New South Wales for research. The result of the conducted research indicated that the fragment is a fragment of a panel of a honeycomb structure, analogues of which are used in the aircraft industry, i.e. is the work of human hands. By that time, it became obvious that the area where Fraser's farm was located bordered on the territory of the secret Australian test site, where the British and Americans conducted their secret tests of aircraft with nuclear installations. Apparently, the tests of the SECU prototypes were carried out at this test site, given the fact that in one of the options the device was supposed to carry a nuclear power plant on board.

The reason for the crash of the EVE apparatus in Australia was most likely a fuel explosion. Similar fuel was used on the German rocket fighter Me 163

During the Second World War. And the experience of the combat use of this fighter has shown that the Me 163 is dangerous in operation for flight and ground personnel due to the extreme toxicity and explosiveness of the fuel. The developers of the G.KU knew about this circumstance, as evidenced by the fact that the team of test pilots of the apparatus was advised by the German Rudi Opitz, one of the leading test pilots of the Me 163 during the WAR.

M2-E1

In the early 1960s, MASA developed spacecraft with a load-carrying body intended for use as a re-entry vehicle. The absence of wings reduced the destructive effect of the heat flux on the structure of the apparatus during descent from orbit. In 1962, at the Dryden Research Center (Edwards Air Force Base, Calif.), development of the M2-E1 apparatus began ("M" meant "manned" and "E" meant "flight"). A prototype completed a year later was an apparatus with a load-bearing frame made of steel pipes and plywood sheathing, the weight of the apparatus was 454 kg.

The initial tests of the M2-E1 apparatus were carried out in tow behind a car at a speed of up to 177 km/h, then the tests continued with towing by a C-47 aircraft to a height of 3600 m. Thompson. A typical M2-E1 flight lasted approximately two minutes at a glide speed of 110 to 120 miles per hour. Then, a solid-propellant rocket engine with a thrust of 113 kg was installed in the tail section of the apparatus, which could work for 10 seconds. In total, over 400 towings by car and 77 flights with

tug aircraft. The success of the M2-E1 program became the basis for the construction at Northrop

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"Flying saucer" E.V. Patent No. 4014483 R. McNeil (1977)

"Analogue 105" "Analogue 105"

Model of the "Spiral" system

Handcrafted NIS

two heavy vehicles M2-E2 and NI-10, which were tested at the Ames and Langley centers, and the X-24A and X-24B devices built by the Martin company for the Air Force.

In addition to the M2-E1 device, in the same years, MAZA had projects for the M!-E and ShV devices. Apparatus B was developed at the Langley Center and was a single-seat "flying saucer". The characteristics of the device are unknown.

M2-E2 and HE-10

In the middle of 1964, based on the test results of M2-E1, MAZA issued a contract to Northrop for the construction of two experimental vehicles M2-P2 and HI-10. They were all-metal wingless vehicles with a supporting body. The M2-2E2 apparatus made its first flight on July 12, 1966 as a glider after uncoupling at an altitude of 14,235 m from the V-52 carrier aircraft. Four minutes later, he made a successful landing at a speed of 306 km/h. In May of the following year, M2-E2 was seriously damaged during landing, after which the restored and modified device was renamed M2-E3, which made its first flight with a running engine on June 2, 1970. Later, the device managed to reach a speed corresponding to M=1.7 at an altitude of 27,430 m.

The NI-10 device made its first flight on December 22, 1966. On November 13, 1968, the first flight of the HE-10 took place with the rocket engine turned on, during further flight tests it reached a speed corresponding to M = 1.9 at an altitude of 27,430 m. Tests of both devices ended in 1973.

$U-50 and X-24

In the 1960s, the Martin company developed a design for an apparatus with a carrier body 5U-5 as part of the US Air Force project 5TAVT (Srasesgaÿ Tesÿpojoru apa Aduapsed

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Bachelse Kozyrev, Mikhail Kozyrev

Keeppu Tez). More than 50 subsonic flights were performed at the Baltimore branch of the firm.

The unmanned test apparatus was supposed to be launched at the end of 1966 from Vandenberg Air Force Base (California) using a launch vehicle. This flat-bottomed vehicle with a curved upper surface and two vertical stabilizing surfaces was only 2.44 m long with a maximum width of 1.22 m. layers of the atmosphere. The device weighed about 400 kg. The leading edges had a heat-shielding coating based on zirconium and graphite, and an organosilicon ablation coating was deposited on the rest of the body of the apparatus.

The US Air Force showed some interest in this type of apparatus, which could be used for reconnaissance operations. In the 1960s, photographic films of intelligence received by American satellites were dropped from orbit in ballistic capsules. The capsule then parachuted into the Hawaiian Islands, where it was picked up by special teams. It was a rather complicated and unreliable operation. The maneuverable return vehicle seemed to be more preferable for these purposes. In addition, such a device would be less vulnerable to attempts to shoot it down with anti-satellite missiles. In addition, the Air Force intended to use these devices to return crews from the orbital station, which the Americans were going to launch by 1969.

The proposed flight test plan for the 5U-50 vehicle was to start with the launch of the Atlas 5GM-3 launch vehicle. The device was supposed to separate from the carrier at a speed of 28157 km/h. A pair of hinged flaps in the tail section made it possible to control the apparatus in dense layers of the atmosphere. When the speed of the apparatus decreased to M=2, the release

the braking parachute was deployed, and at an altitude of 13,500 m the main parachute opened. The device descending on a parachute must pick up the C-130 rescue aircraft in the air, and in case of splashdown, it must pick up the rescue vessel. In case of successful tests, it was supposed to build a full-size 5U-5K apparatus.

By 1970, the continuation of the project was transferred to the company "Marietta" under the designation X-24. The first Marietta X-24A was a triangle with a flat bottom surface and three vertical surfaces on top of the fuselage. As a power plant, a HEVI1 rocket engine with a thrust of 3629 kg was used. The first flight of the device took place in March 1970 with undocking from the B-52 carrier aircraft. After 28 test flights, the Kh-24A was converted into the swept-shaped Kh-24B, which made its first flight in August 1973. In total, the Kh-24V performed 10 gliding and 26 flights with the engine running, in 1975 the program was finished. Characteristics of X-24V: wingspan - 5.84 m, length - 11.43 m, launch weight - 5896 kg, flight duration - 15 minutes, maximum speed - ÿ=1.76.

Kh-24S (1-301)

Successful tests at MAZA of a supersonic Kh-24V hulled vehicle in 1975 secured funds for a hypersonic experimental vehicle commonly known as the Kh-24S. This aircraft was similar to the X-24B, in plan it had the shape of a triangle with a sweep of 75°. The power plant consisted of a KhG.V-99 rocket engine and an experimental hypersonic ramjet; the aircraft reached speeds corresponding to M=8 at an altitude of 27,400 m.

Although the official project was shelved in the early 1980s, Lockheed is believed to have produced the hypersonic vehicle in 1982. Lockheed's own studies of the X-24C were known internally as the G.-301. Ap

Parat used the G.V-105 rocket engine as the prime mover, the same engine (liquid oxygen/kerosene) that was used in the Atlas rocket. A hypersonic ramjet powered by hydrogen was used as a secondary engine at the calculated altitude.

fuel. 1.-301 had a length of 22.6 m, it was launched from the B-526 aircraft in the same way as the X-15.

MiG-105 "EPOS"

The Spiral aerospace system project was launched in 1965 under the leadership of the chief designer G.E. Lozino-Lozinsky in the Design Bureau. A.I. Mikoyan. The system was a combination of two aircraft: a carrier aircraft and an EPOS orbital aircraft (experimental manned orbital aircraft). The take-off weight of the Spiral system was 115,000 kg.

Characteristics of the carrier aircraft: wingspan - 16.5 m, length - 38.0 m, empty weight - 52,000 kg.

Characteristics of the EPOS aircraft: wingspan - 7.4 m, length - 8.0 m, empty weight - 10,000 kg.

To study the behavior of thermal protection in natural conditions, two unmanned prototypes were created on a scale of 1:3 and 1:2, which, received the designation "Bor", they were brought to a given height using a launch vehicle. Controllability was studied using the Analog 105 manned aircraft, which was built in three versions: "105.11" - controllability in subsonic modes and during landing, "105.12" - in supersonic mode and "105.13" - in the hypersonic flight section . Unlike the Space Shuttle and Buran, EPOS used flexible thermal protection made of many steel plates mounted on special ceramic supports. At high altitudes, this system worked as a screened vacuum thermal insulation (ZVTI).

At present, one of the analogues of "EPOS", created in the OKB im. Mikoyan in 1976 to work out the approach system, stability and controllability assessment, is in the collection of the Central Museum of the RF Air Force in Monino.

"Bor-4"

In the Soviet Union in the 70s, research was carried out on unmanned aerospace aircraft of the Bor series. For example, the Bor-4 was a reduced size (on a scale of 1:2) unmanned version of the previously developed manned VKS under the Spiral program. VKS "Bor-4" was made according to the aerodynamic configuration "support body" and had the following characteristics: wingspan - 2.6 m, length - 3.4 m, takeoff weight - 1450 kg, landing weight - 795 kg . Bor-4 was developed at the Flight Research Institute (LII) named after V.I. MM. Gromov, the manufacture and assembly of the devices were carried out at the Tushino Machine-Building Plant (TMZ).

The design feature of Bora-4 was swivel wing panels. During the launch into orbit and during the orbital flight, the consoles were in a folded position on the back of the vehicle. When leaving the orbit, the consoles unfolded, forming a given transverse Y of the wing in order to ensure the necessary balance of the apparatus in dense layers of the atmosphere. The roll control of the vehicle was carried out with the help of differential deviation of the consoles from the balancing position. After reducing the speed of the apparatus, the consoles turned to a horizontal position to improve the aerodynamic quality. The VKS was launched into an orbit with a height of about 225 km using a two-stage launch vehicle Kosmos-3M, after

separation from the launch vehicle, the orientation of the apparatus in space was carried out by a system of 8 gas-dynamic low-thrust engines. The deceleration pulse for the spacecraft deorbit was produced by a solid-propellant engine mounted on the vehicle's back, then the deceleration engine was dropped. After completing the gliding segment of the flight in the atmosphere, the spacecraft made a steep spiral at an altitude of 30 km to reduce the flight speed. At an altitude of 7.5 km, a parachute was released, which ensured the landing of the device on water with a vertical speed of 7-8 m / s.

The first flight of Bora-4 took place on December 5, 1980. The device was launched along a suborbital trajectory towards Lake Balkhash, during the flight the functioning of all systems of the complex was checked. This was followed by two single-orbit orbital launches (in June

1982 and in March 1983), the splashdown of the vehicles is carried out.

took place in the Indian Ocean, 560 km from the Cocos Islands. The purpose of these launches was to study the temperature distribution and determine the values of heat fluxes along the thermal protection of the apparatus, the distribution of pressures near the aerodynamic controls, the effect of interplate gaps and ledges on the character

thermal protection teristics, assessment of thermal protection performance under simultaneous exposure to aerodynamic, thermal, acoustic and vibration loads, etc. During the flight, information received from accelerometers, indicators of angular rates, indicators of the position of the wing consoles, from 150 thermocouples and several dozen pressure sensors was recorded on the onboard memory device. The recorded information was transmitted during the orbital flight to two specialized long-range communication ships, and during the descent, to a ground receiving point. The next two Bora-4 orbital flights took place in December 1983 and December 1984, splashdown was carried out in the Black Sea water area west of Sevastopol.

Bor-5

The Bor-5 experimental apparatus was a geometrically similar copy of the Buran videoconferencing system, made on a scale of 1:8. "Bor-5" was manufactured at the EMZ them. V.M. Myasishev with the participation of specialists from the FRI and NPO Molniya. It was used to check the aerodynamic and balancing characteristics, pressure distribution over the surface of the vehicle, determine the thermal and acoustic loads, verify the reliability of the aerodynamic calculation methods used in the design of the Buran, and so on. Bor-5 was launched with the help of a launch vehicle towards Lake Balkhash along a suborbital trajectory. The flight range of the apparatus was 2000 km, the maximum height of the trajectory was 210 km. After separation from the launch vehicle, the vehicle entered the dense layers of the atmosphere and performed a controlled flight corresponding to the calculated trajectory of the Buran spacecraft. At an altitude of about 7–8 km, the apparatus performed a steep spiral to cancel the flight speed, after which, at an altitude of 3 km, a parachute was released, on which the Bor-5 landed at a vertical speed of 7–8 m/s. Information about the status of the systems of the device

it was transmitted to the ground in the same way as during the tests of Bora-4.

The first launch of Bora-5, which took place on July 6, 1984, ended unsuccessfully: the device could not separate from the launch vehicle. However, the next four launches in 1985-1988. passed successfully. On the basis of the Bora-4, the Bor-6 was created with special cooled antennas placed in the oncoming stream. This apparatus was intended to investigate the possibility of implementing

radio communications on the plasma section of the descent, but work in this direction was soon curtailed. The data obtained with the help of devices of the Bor series were used in the creation of the Buran videoconferencing system.

Spacecraft "Viking"

At the end of 1968, a sensational photograph of a “flying saucer” appeared in the American media, taken by photographer Paul Massa from Ohio. This dish stood alone and inconspicuous among the abandoned samples of space technology at the White Sands rocket range, soon this image went around the world without an actual explanation about the photographed device.

Some time later, a press release appeared for Gabe Brillant, chief of the information department at the White Sands Missile Range. The message stated that the object photographed by Massa was the vehicle used in the Voyager program. This apparatus was used to test the parachute intended for the soft landing of the Viking spacecraft (SC) on Mars. In order to simulate the stage of landing on Mars, the following test procedure was developed within the framework of the PEPP program (ÿÿÿÿpeÿÿgy Epu Rÿgasÿÿÿÿÿ Provgat).

The spacecraft was lifted by a balloon from the launch site in Roswell to a height of about 40 km. The balloon drifted west to the missile range,

Scheme of the apparatus "Viking" "Viking"

where the device was dropped. After the apparatus was uncoupled from the ball, the engines located under the apparatus were turned on, raising it to the required height, where the parachute was deployed. The tests were carried out by MAZA in 1966-1967. In total, it was planned to test five devices, but only four were launched: August 30, 1966, July 28, August 15 and August 22, 1967. The launch of the fifth vehicle was canceled due to the successful completion of previous launches and the receipt of the full amount of necessary information . It is possible that this unused fifth apparatus was depicted in the photograph widely circulated by the media.

The disk-shaped apparatus had a diameter of 4.6 m and contained 12 small booster solid-propellant rockets around the bottom. At a height of about 40 km, the device rose with the help of the largest air

ball ever developed in the USA. Apparatus

weighing 726 kg carried a cylindrical container with control equipment and instruments for recording flight parameters. Approximately two hours were required for the balloon to raise the apparatus to a given height. After that, the period of free flight of the balloon began, which could last several hours.

owls, to the intended reset point of the apparatus. When the ball reached the drop point, a radio command was issued from the ground control station to undock the apparatus. When uncoupling from the balloon, timers, accelerometers, tape recorders and movie cameras were automatically started. Two cameras were on the vehicle, and three on the payload container. All further

the programmed sequence of actions was controlled by timers installed in the payload container and in the vehicle itself.

Four seconds after the uncoupling, the rockets were switched on, each of which had a maximum thrust of 1542 kg, and a burning time of 1.5 seconds. The rockets lifted the vehicle up along a hinged trajectory. At the end of the accelerating section, the vehicle reached a speed of 1368 km/h, under these conditions the velocity pressure will closely correspond to the pressure exerted by the Martian atmosphere on the descent vehicle. Then a command was issued to open the parachute of the payload compartment. Half a second after the start of the parachute opening, the payload compartment fired back from the disk. Approximately four seconds later, the parachute with a diameter of 25.6 m fully deployed, after another 22 seconds, ballast was dropped from the payload compartment. The descent of the payload by parachute was approximately 100 minutes. The device, on its own parachute, landed 14 minutes after separation. The flight control of the entire system was carried out using radar tracking, accompaniment by an observation aircraft, localizers and ground-based cameras,

The design of the apparatus and the payload compartment was carried out at the Center named after V.I. Langley, the Cambridge Air Force Research Laboratory in Bedford (Massachusetts) was responsible for the preparation and launch of the balloon, the balloon itself was built by Seÿÿÿÿÿÿÿÿ (Northfield, Minnesota).

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Diskoplan - "space glider" M. Sukhanov

In 1979 M.V. Sukhanov developed a discoplane that could be used to evacuate spacecraft crews from orbit. A feature of the diskoplan was a wing that unfolded like a fan and a drop-down X-shaped tail. The diskoplane was deorbited inside a cylindrical capsule, while the wing and tail were in the folded position. After entering the dense layers of the atmosphere and aerodynamic deceleration, the parachute system was opened in the tail part of the capsule, and the head fairing of the capsule was dropped simultaneously. The discoplane released at the same time slipped out of the capsule, its wing and tail were opened, and the discoplane made a controlled gliding descent. The apparatus is stored in the RF Air Force Museum (Monino).

M.V. Sukhanov (second from right) with a group of designers at the purge model of the "space glider". From the archive of R.S. Zvereva (far left)

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Vachesse Kozyrev, Mikhail Kazyreye

Project "Rescuer" - Apparatus "Rescue" civil application with a dummy "space parachute"

Characteristics of the discoplan: wing diameter - 3.6 m, wing area - 10.0 m², launch weight - 300 kg, sink rate - 8 m/s, lift-to-drag ratio - 4.

"Demonstrator-2"

The Demonstrator-2 apparatus was first presented at the MAKS-2003 air show in Zhukovsky. It is an inflatable parachute-type braking device for atmospheric entry and soft landing. This "space parachute" was developed at the N.I. G.N. Babakin, originally created for the descent to Mars of small automatic stations. Apparatus

It is made in the form of an inflatable shell of the shuttlecock type, equipped with a system of thermal protection and shock absorption during landing, it is filled with gaseous nitrogen during deployment. The weight of the apparatus is 145 kg. Flight tests of "Demonstrator-2" with the help of launch vehicles have been conducted since 2000.

5. AIRCRAFT VEHICLES WITH NUCLEAR PROPULSION

MERA, AMP and SAMA programs.

In October 1947, the technical intelligence branch of the AMC command, in its secret EEI digest prepared for American military attachés in various countries, instructed them how to determine the type of engines of the aircraft of interest. Among the types of engines described, the atomic engine was also mentioned.

As early as the January 1941 issue of the American journal Rorschag Méshapis, an article by Dr. R. Langer was published on the use of uranium-235 as fuel for vehicles. The design of the “flying wing” aircraft with a nuclear power plant described in the article was then perceived by readers and many experts as science fiction. However, a year later, Enrico Fermi, one of the founders of nuclear physics, discussed with his colleagues in the Manhattan nuclear project the practical problems associated with the use of atomic energy for aircraft flight. Two years later, the US military was already discussing this problem. The discussions resulted in the conclusion of an agreement between the Air Force and the Atomic Energy Commission (AEC) on the beginning of the MERA program (Mischeag Epegru South (ÿe Porchchop ou Aigsgaÿ) in the spring of 1946. The purpose of this program was to study the problems that could arise with development of an aircraft with a nuclear power plant (NPU).

It was believed that such an aircraft could be used as a strategic bomber or reconnaissance aircraft capable of carrying out combat duty in the air without refueling for several days. Among the problems to be studied within the framework of the MERA program were the following:

the effect of radiation on materials that could be used in the construction of an aircraft and its power plant; impact of decay products on the environment during operation and possible emergency situations;

` protection of the crew from radiation in flight and maintenance personnel on the ground; selection of a place for testing an aircraft with nuclear control systems, etc.

In July of the following year, the requirements for the future aircraft with YSU were formulated: takeoff weight - 136,078 kg, maximum speed - 829 km/h at an altitude of 10,668 m, payload - 5443 kg. In addition, even under the most unfavorable set of circumstances, an atomic aircraft should not significantly change the natural radioactive background. Within the framework of the MERA program, a contract was signed with the Fairchild Aviation Corporation (Raispia Epeshe apa Aprape Sogrogayop). The Corporation carried out studies related to the study of the effect of radioactive radiation on the properties of structural materials, to the protection of the crew and electronic equipment from radiation, to the operation of nuclear control systems in flight and on the ground, etc. In addition, flight tests were carried out. flying the B-29 aircraft with a radioactive installation placed in the bomb bay. However, as a result of the research, it turned out that the required amount of work is beyond the scope of the Fairchild firm. Work on the design of the aircraft itself and its power plant practically did not move forward, which was the reason for the termination of the contract. By the end of 1948, Air Force spending on the MERA program amounted to about ten million dollars.

Although work under MERA was in full swing, many American nuclear physicists were opposed to this program. One of the opponents of the program was, in particular, Robert Oppenheimer, who headed the

time AEC Advisory Committee. He believed that a nuclear aircraft should not have been built, and he warned his young colleagues about the danger associated with this. This conflict forced the AES in 1948 to request an opinion on the MERA program from MIT specialists. Soon a scientific conference took place with the participation of a research group called "I.exposure Progress" and organizations participating in the MERA program. The final report stated that a nuclear aircraft could be built despite the enormous technical difficulties involved. The development period was estimated at approximately 15 years, and the total cost of work was one billion dollars. The report also outlined the ways in which it was supposed to develop nuclear control systems: on the basis of turbojet engines, on the basis of ramjet engines and on the basis of a rocket engine. It was noted that the solution of the task on the basis of turbojet engines with the use of NCS both open and closed cycles seems to be the most realistic.

On April 27, 1949, at a meeting of representatives of the Air Force and the AEC, a decision was made to abandon MERA and adopt a new AMP program (Archimerus Misceag Rhorisop). In 1951, four firms were involved in the work within the framework of the competitive program: General Electric, together with Conver, were to develop an aircraft with open-loop nuclear control systems, and Pratt and Whitney, together with Lockheed, an aircraft with closed-loop nuclear control systems. - of that cycle.

The principle of operation of the power plant, on which General Electric worked, was as follows. The air compressed in the compressor was supplied to the reactor, where it removed the heat released as a result of the nuclear reaction, while cooling the working zone. Then, the air heated to a high temperature was supplied to the engine turbine, doing work in it, and was thrown out through the jet nozzle. The main assets

The benefits of this scheme were its relative simplicity and shorter development time required. However, the same scheme had a major drawback: due to the erosion of the walls of the air channels of the working zone of the reactor, radioactive particles were emitted into the atmosphere.

Initially, the company focused on the J53 turbojet engine being developed at that time. However, the calculations showed that the total weight of the nuclear control system should be 74,842 kg, of which 44,000 kg accounted for the radiation protection of the reactor and the crew. In order to reduce the total weight of the power plant, they turned to the serial J47 engine (used in the design of the B-47 bomber), which was assigned the designation 9 in the variant for the YSU.

Research on the development of the optimal design of nuclear control systems was carried out by the General Electric company in 1955-1957. on specially designed experimental setups of the NTKE series NTKE-1I was intended to demonstrate the possibility of operating a turbojet engine using the energy released in the reactor. It consisted of a reactor, a shield, two Kh-39 engines, a pipeline system, and control and monitoring systems.

At NTVE-2, options for the design of the reactor core were worked out. The NTKE-3 installation was in fact a prototype of a nuclear control system intended for flight tests. It developed enough thrust to theoretically fly at a speed of 740 km/h for a distance of 48,280 km. However, radiation levels were still a problem - in one test, a failure in the reactor control system caused a radioactive release into the atmosphere, which led to the contamination of the surrounding area.

The Conver company developed an experimental aircraft (tailless or canard schemes in different versions of the project) under the designation X-6 as part of the AMP program. The aircraft was supposed to have a takeoff weight of up to 75 tons,

The B-58 bomber, which made its first flight in June 1954, became the prototype for it. a nuclear power plant was in operation. YaSU included a 3 MW reactor installed in the rear fuselage, and four engines 9. Various design options provided for the installation of engines below or above the fuselage in the area of the reactor compartment. The chemical-fueled turbojet engines were located on pylons under the wingtips. In the bow of the fuselage there was an ekinage cabin. Since the weight of the necessary radiation shielding of the reactor exceeded the calculated carrying capacity of the future aircraft, a compromise variant of the organization of protection was adopted - the so-called “shadow”, or divided, protection. According to this option, the thickness of the radiation protection of the reactor was reduced to a minimum in order to fit the reactor into the contours of the fuselage. The cockpit was to be enclosed in an additional radiation protection capsule, and an additional protective panel was also provided behind the cockpit, filled with an aqueous solution of the boron isotope, which is a good neutron absorber.

The problem of radiation protection of ground personnel after the landing of a nuclear aircraft was supposed to be solved in the following way. The landing aircraft with the reactor shut down had to be towed to a special platform equipped with a deep shaft. Here, the YaSU was removed from the aircraft, lowered into the shaft by a lift and placed in a special room equipped with radiation protection. The concept of "shadow" protection had to be tested in flight conditions. For these purposes, the heaviest US Air Force B-36N bomber at that time, which had a maximum take-off weight of 186 tons, was re-equipped.

capable of carrying a bomb load of 39 tons. The modernized aircraft received the designation MV-36N. The “flying laboratory” aircraft was supposed to carry a test reactor without engines in the rear part of the bomb bay. The reactor, 1.2 m in diameter and weighing 16 tons, operated on fast neutrons, and uranium dioxide was used as nuclear fuel. The reactor was switched on in flight and cooled by atmospheric air supplied by velocity pressure through air intakes specially made on board the aircraft. Heated air was expelled through the exhaust pipes. The protective capsule with the cockpit was located in the forward fuselage. The total weight of the protective capsule was 12 tons, its walls were made of lead and rubber, the cabin glazing was made of lead glass 25–30 centimeters thick. Behind the cockpit there was a protective screen made of steel and lead, 2 m in diameter and 10 cm thick. During the flight, the operation of the reactor was monitored from the cockpit using an internal television network. When the plane was not flying, the reactor was stored in a specially prepared underground box at the Convair test site in Texas.

During the period from July 1955 to March 1957, 47 flights of the MV-36N aircraft were performed over Texas and New Mexico. Near the MV-36N, during each of its flights, there was an amphibious transport aircraft carrying a platoon of armed marines on board, ready at any moment to parachute down in the event of an MV-36N accident and take this place into the security ring. Fortunately, there were no accidents during the entire testing period, and the MV-36N test aircraft was eventually taken out of service by the end of 1957.

Pratt & Whitney was working on a closed-loop control system. An essential advantage of this scheme was the absence of radioactive product releases from engine jets. This was achieved through

use in the circuit of an additional closed water circuit that removes heat from the reactor. There was a 49,000 hp steam turbine in the closed primary cooling circuit of the reactor. The turbine, with the help of a gearbox, rotated a fan 3.05 m in diameter, installed in a secondary open circuit. Atmospheric air blown by the fan entered the turbine condenser, was heated there, and then fed into the jet nozzle of the engine. However, it soon became clear that the efficiency of the fan motor is not high, and in terms of weight it is very heavy. Therefore, in 1953, the second version of the nuclear control system was built and tested, which included a reactor and six J91 turbojet engines with a thrust of 11,340 kg each. In the closed primary circuit of the reactor, liquid sodium was used as a coolant, which transferred heat to the air of the secondary open circuit through a heat exchanger. This made it possible to reduce the weight of the reactor itself and radiation protection by almost 20 tons. However, the disadvantages of the two-circuit scheme were the complexity of the design of the intermediate heat exchanger and the large weight of pipelines with a liquid metal coolant.

In 1955, the Strategic Air Command (SAC) adopted three programs for development under the general designation No. 5 (Mearop Zuchet). The \5-107A program provided for the development of intercontinental ballistic missiles, \/5-110A long-range supersonic bombers with conventional fuel engines, and \!5-125A nuclear-powered transonic aircraft capable of staying in the air for several days.

Within the framework of \$-125A, it was supposed to develop an aircraft carrying missile weapons capable of penetrating at low altitude deep behind enemy lines in order to search for and destroy with missiles moving targets or targets whose locations are not accurately determined by intelligence to carry out effective attack between

continental ballistic missiles. The design of the engines of the power plant should have allowed the use of conventional chemical fuel in the takeoff and landing mode, and in the cruising mode, the use of the thermal energy of the reactor. This program also had another name - CAMAT (solipiotsyu aig-bote tpÿÿÿPe-ÿÿÿpsÿÿÿÿ apa ÿom-ÿÿÿÿ]).

Firm "Konver" received an order for the construction of two experimental aircraft under the designation MX-2. The MX-2 aircraft was made according to the “duck” scheme, the vertical tail was located on the wingtips, and the YaSU was in the rear fuselage. The length of the aircraft was 45.7 m, the wingspan was 52.1 m, the wing area was 54.9 m?, the maximum takeoff weight was 226 tons, the payload weight was 22.6 tons. The maximum speed that the aircraft could develop at an altitude of 10,670 m, corresponded to M = 0.9, flight duration - 126 hours. Nuclear power plants for the new aircraft were developed by General Electric and Pratt & Whitney. The first flight of the MX-2 aircraft was planned for 1965.

General Electric developed a complex based on the ÿ87 engine under the designation 11. 11 included two turbojet engines operating from one reactor. The maximum total thrust of 25,000 kg was to be achieved by afterburning conventional aviation fuel in the combustion chambers ahead of the engine turbines. In cruising mode, chemical fuel was not used. Design 11 was created under the guidance of Bruno Bruckmann, who worked during the Second World War as the chief specialist of the engine building department of the German company VMU.

The Pratt & Whitney firm was working on a third version of the nuclear control system, which included a reactor with a double-loop closed cooling system and a modified J58 turbojet engine with an afterburner thrust of 14,740 kg. The]58 turbojet engine was later used in the design of the ZV-71 high-altitude reconnaissance aircraft.

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Veachspav Kazyrev, Mikhail Kazyre

The B-60 bomber was chosen to test the developed nuclear weapons. The layout of the installation of nuclear control systems and radiation protection equipment on the test aircraft was similar to the installation on the MV-36N bomber.

Work on the creation of an atomic aircraft progressed slowly, encountering various difficulties. Interest in the work on the part of the Air Force began to fall, funding for the work began to be cut. However, what happened in 1957-1958. events dramatically changed the situation around these works. On October 4, 1957, the Soviet Union launched the world's first artificial Earth satellite into orbit, ahead of the United States in this competition. The CAMA program was closed in 1960, and the AMP program was closed the following year. Between 1946 and 1961, the US Atomic Energy Commission spent more than $7 billion on nuclear aircraft.

Atomic "dish" S. Ulam

Polish mathematician Stanisÿaw Ulam arrived in the United States.

in the 1930s on the recommendation of John von Neumann and helped build the first atomic bomb at Los Alamos during World War II. When interest in thermonuclear bombs began to grow in the late 1940s, Ulam returned to the laboratory in New Mexico as a member of Edward Teller's working group.

Already at the beginning of 1944, Ulam and other researchers began to consider the use of nuclear energy as a means of propelling an aircraft or rocket. In 1946 he made the first rough calculations justifying the possibility of using external atomic explosions to turn aircraft into thrust, and in 1947 Ulam and his assistant Frederick Reines issued a report in which this concept was described in more detail. By the mid-1950s, it became possible to create relatively inexpensive and small-sized nuclear devices. Summer 1955

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Hand-crafted NTOs

Patent No. 4795111 Patent No. 4824048 P. Moller (1989) K. Kim (1989)

Ulam and Cornelius Everett made a deeper study of the possibility of using nuclear explosions as a source of propulsive energy for a spacecraft. In August, they presented the results of their research in a secret report entitled "Method of Propulsion of Projectiles by External Nuclear Explosions."

The essence of the proposed method was to use a series of delayed atomic bombs ejected and detonated at a considerable distance from the spacecraft in a vacuum. The main problem in this case was the need to protect the spacecraft from destruction or damage during explosions. As a solution, it was proposed to fill the space between each bomb and the spacecraft with a damping layer, the so-called "propellant", consisting of water or a certain type of plastic. This "propellant", when heated by the explosion of the bomb, will propel the spacecraft during its subsequent explosive expansion. But at the same time, a serious problem still remains - heating the spacecraft with “rocket fuel”. This problem, according to the authors, could be solved by optimizing the time interval between explosive impacts, as well as by using a powerful magnetic field that protects the spacecraft body from direct contact with ionized gas, into which “rocket fuel” turns during an explosion. .

As an example, the authors considered the movement of a disk-shaped spacecraft with a diameter of about 10 m and a final mass of 12,000 kg, which should include the spacecraft structure, payload, instruments, compartments for storing “propellant” and bombs, and, if required, apparatus for maintaining a protective magnetic field. The bombs are fired at one second intervals and explode at a distance of approximately 50 m from the spacecraft. Synchronized with bomb explosions, disk-shaped masses of “rocket fuel” are ejected in such a way that the distance between the spacecraft and the fuel was approximately 10 meters at the time of the bomb explosion. "Rocket fuel" is heated to a high temperature and, expanding, transfers momentum to the spacecraft. The specified final velocity of the spacecraft is reached after 50 such explosions.

Ulam's concept became the basis for the Air Force's secret nuclear propulsion work and the Orion program, MAZA's serious attempt to create a similar spacecraft for interplanetary travel. By the early 1960s, Sepega! Aiotis" within the framework of the "Orion" program studied the possibility of creating a vehicle capable of delivering an expedition to Mars. This vehicle had dimensions in diameter comparable to the diameter of the Saturn U rocket. It was supposed to be launched into near-Earth orbit in parts and assembled there. A flight to Mars was planned for several months with a crew of eight people. Landing on Mars was to be carried out using a promising apparatus with a supporting body.

In November 1959, Cepaga Agiotis successfully tested a miniature flying prototype of the Orion spacecraft, which flew to an altitude of approximately 100 meters using several conventional charges detonated outside the spacecraft in a certain sequence and at short intervals in time.

8 Man-made UFOs

9. DEVICES LIGHTER THAN AIR

Japan impact balloons

After the massive raid on Pearl Harbor during World War II, the Japanese temporarily switched to the tactics of single attacks on American coastal targets from submarines. In February 1942, Japanese submarine 1-17 bombarded an oil field near Santa Barbara, damaging a pumping station in the process. In June of the same year, a submarine [-25] bombarded a coastal fort (Oregon), damaging a baseball court, and in September, a small seaplane was launched from the same submarine, which dropped firebombs that caused several forest fires. ditch.

However, at the same time, in the deepest secrecy, the Japanese were preparing an operation to use balloons to bombard targets on the American mainland.

The balloon attack concept was the brainchild of the Japanese Ninth Army Research Laboratory, which was run by Major General Sueyoshi Kusaba. When developing the concept, the circumstance was taken into account that at heights of more than 9 km over Japan in winter there are high-speed air currents moving in an easterly direction, i.e. towards the American continent. The bottom line was that the balloon, having risen to a height of more than 9 km, is picked up by a strong air flow and moves across the Pacific Ocean, covering a distance of more than 8,000 km in three days. Such balloons could carry bombs to the United States and drop them there to destroy people, buildings, and set fire to forests. Thus, the Japanese wanted to take revenge on the Americans for the massive raid of B-29 bombers on Tokyo and other Japanese cities in the spring of 1942. The Japanese called the new weapon “Isep BaKidap”, which literally means

"incendiary bomb", but which can also be translated as "fireballoon". Sometimes the name "Ri-Oo" is also found in the literature.

Creating a balloon that could cross the Pacific Ocean with a payload and then automatically attack the target was a technically difficult task. The balloon was supposed to be filled with hydrogen. In flight, hydrogen expands during the day, heating up from the sun and causing the balloon to rise higher, and then cools at night, causing the balloon to lose altitude. Japanese engineers invented an automatic system for maintaining a given flight altitude, controlled by an altimeter, which allowed the balloon to stay in the stream moving to the east all the time. When the balloon descended below 9 kilometers, the squib fired a certain amount of ballast at the electrical signal from the altimeter. Sandbags suspended from an aluminum wheel were used as ballast, and two symmetrically located bags with pellets to maintain the balance of the ball were fired simultaneously. If the balloon rose above 11.6 km, the altimeter signal opened the hydrogen bleed valve. Hydrogen was also automatically vented if the pressure inside the balloon reached

critical level. The control system was adjusted so that after three days of the balloon's flight bombs were automatically dropped (at this time, according to calculations, the balloon should have been over the territory of the United States). Having dropped the bombs, the ball began to descend, after which, with a delay of about 84 minutes, the fuse was turned on, which detonated the balloon with hydrogen.

The balloon had to carry about 900 kg of equipment, bombs and ballast, to lift such a load a balloon with a diameter of about 10 m was required. ”, made of mulberry wood, which was quite airtight and durable. The first launches of paper balloons took place in September 1944 and proved to be satisfactory.

Only towards the end of 1944 did the Americans realize that strange objects flying high in the sky (recall the incidents in Columbus and Los Angeles) were balloons. Eyewitnesses saw a ball in the area of Thermopolis (Wyoming) that dropped a fragmentation bomb. A P-38 fighter shot down a balloon near Santa Rosa (California), another balloon was seen in Santa Monica, the remnants of "mazz" paper were found on the streets of Los Angeles. The two balloons reached the Modoc National Park, east of Mount Shasta, on the same day. Near Medford, a bomb dropped from a balloon caused a huge fire. Crews of ships

The Navy found balloons in the ocean. The shells of the balls and the remains of the equipment were also found in the states of Montana, Arizona, in the northwestern United States, Alaska and

,even in Canada. Eventually one of the American fighters managed to make the balloon fall to the ground almost undamaged, where it was examined and photographed.

January 1945, an article appeared in Memsueek, "The Mystery of the Balloon", but the next
same day

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Vnyÿslav Kozyrev, Mikhail Kazetsoev

Patent No. 5064143 Patent No. 5102066 F. Bucher (1991) W. Daniel (1992)

The censorship committee sent out a message to all newspapers and radio stations, which contained a request to refrain from mentioning balloons and the consequences of their raids. This was explained by the need to completely ignore the facts of air raids in the media so that the enemy would not receive confirmation that that his unusual weapon had successfully hit its targets. What was taken into account was not even the damage caused by incendiary bombs, but the fact that the Americans had some idea of the Japanese work on biological weapons. Such work was carried out, in particular, in block 731 in Pingfan (Manchuria), and a balloon carrying a biological weapon appeared to be a real threat to the United States.

None of the Americans could have imagined that the balloons were coming directly from Japan, given the vast distances between Japan and the United States. It was believed that the balloons were launched from submarines near the North American coast. There have also been speculations that the balloons may have been launched from German POW camps in the United States, or even from American Japanese internment centers. The problem is defined

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Handmade software

The balloon launch site was determined by a military geologists unit that was established in June 1942. Working under the direction of Colonel Seedman Poole of Army Intelligence, military geologists examined sand from sandbags dropped from the Yoisep Bakiyap and found that the sand could not have come from the American shores, nor from the nearest Pacific islands, it had to come only from Japan. Subsequently, specific places in Japan were even identified from where the sand was taken.

Meanwhile, balloons began to appear in various US states (Oregon, Kansas, Iowa, etc.) and in Northern Mexico. Air defense fighters tried to intercept the balloons, but had little success, because. the balls flew very high and amazingly fast. For the entire duration of the war, fighters shot down less than two dozen balloons. Japanese propaganda announced big forest fires in the USA and panic among Americans, because. the death toll from the bombing exceeded 10,000. The Americans, on the other hand, stated that there were no strong fires, because. at this time of the year (winter) the forests are wet and the death toll was six

Human.

General Kusaba's units launched more than 9,000 balloons, estimated that about 1,000 balloons reached the United States. There were also curious cases - two fluffy balls returned to Japan, but their landing occurred without causing any damage. The Americans reported only 300 balloons. In April 1945, the Japanese stopped the operation, because. by this time, due to the raids of American B-29 bombers, two of the three Japanese hydrogen plants that provided

operation. On March 10, 1945, one of the last paper balloons reached the Hanford area (near Washington), where there was an industrial enterprise involved in the Manhattan nuclear project, and fell on a power line. This line

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Etaesplsia Kazyrev, Mlikhspalt Kazyreev

was supplying power to a building with a nuclear reactor that produced plutonium for the atomic bomb that the Americans would later drop on Nagasaki, the operation of the reactor was stopped.

American reconnaissance balloons

Project "dorÿeg"

Before the end of World War II, the US Air Force switched to collecting intelligence about the location of troops and potential strategic targets in the Soviet Union. The Americans were also interested in information about the Soviet nuclear weapons program. US Air Force reconnaissance planes sometimes penetrated Soviet airspace, but this was too dangerous, because. could potentially lead to war. In addition, the territory of the USSR was too large for individual peripheral flights, during which a very limited number of targets could be photographed. Balloon technology seemed to be the only way to get a large number of photographs of Soviet objects inexpensively and with a minimal chance of provocation.

In September 1950, the Scientific Advisory Council of the Air Force (AGSAB) studied possible means of solving the problem of conducting strategic intelligence against the Soviet Union. After considering possible applications, AESAB concluded that balloons were the only viable solution in the shortest possible time. In early October, the Air Force began the secret project Sorjeg (Gopher), based on the technologies of the 5Kuÿook project. Test flights began already in February 1951, and reconnaissance flights began in the winter of 1951-1952.

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Handicraft NGOs

Project Modi!

In September 1994, the US Air Force published an official report that the UFO wreckage found by rancher M. Brazel in 1947 northwest of Roswell was the remains of a balloon launched as part of a top-secret program under the code - with the name "Movi" ("Mogul"). The possibility of a connection between the Roswell Incident and the Movie Project was first raised by researchers R. Todd and, independently, by C. Pflok.

After the end of World War II, the Americans, using the Japanese experience in the development of high-altitude balloons "Isep Bakidap", began to study the possibility of using balloons for long-term strategic reconnaissance of the airspace of the USSR and the countries of the socialist camp. Recently, the memoirs of Charles Moore, one of the scientists who took part in the "Mogy}b" project, were published. In his memoirs, he provided new details about the connection between the Roswell incident and the Movie Project. C. Moore, who is currently a professor at the Institute of Mining and Technology in Soccoro, New Mexico, was a graduate student at New York University (MUP) back in 1947. The Mori project was

classified that

Patent No. 5149012 Patent No. 5213284 R. Valverde (1992) S. Webster (1993)

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C. Moore did not even know the name of the project until he recently got acquainted with the results of research by R. Todd. The unclassified goal of the project was to develop balloons with a constant flight altitude for meteorological purposes.

The secret goal of the project was to develop a method for monitoring nuclear test explosions at the test sites of the USSR using low-frequency acoustic microphones raised to a great height. No other means of controlling the nuclear activities of such a closed country as the USSR were available to the Americans, and the project was given the highest priority. One of the tasks of MUH, which acted as a subcontractor in the Mog project, was the creation of balloons with a constant flight altitude, carrying acoustic microphones and equipment. After carrying out several preliminary flights in Bethlehem (Pennsylvania) in April 1947, which ended unsuccessfully due to strong winds, the tests were transferred to New Mexico. In June and early July 1947, numerous balloon flights were made at the Alamogordo military airbase. In flight, these structures were very long trains containing up to two dozen neoprene balloons, with a total length of over 180 m.

Ch. Moore believes that the flight of Balloon No. 4, which he helped launch on June 4, 1947, was the source of the debris found by Brazel near his ranch, and therefore became the direct culprit of the "Roswell incident." Many of the types of materials used in the balloon's construction are strikingly similar to debris materials. The ball carried large and medium-sized octahedral objects - radar reflectors, which were used to track the flight of the ball. Hydroacoustic buoys were suspended on aluminum rings. According to C. Moore, the wreckage discovered by Brazel and later transferred to Fort Worth (pc.

Texas) for inspection by Brigadier General Roger Ramay, correspond to the flight of balloon No. 4 from several points of view. Some of the debris contained pieces of an odorous, smoky gray rubbery material that is identical to the neoprene used in the balloon's construction. Much of the debris—rods, metal foil, and strange sticky tape—similar to the materials used in the construction of radar reflectors. It must be said that back in 1947, officer Irving Newton, seeing the fragments brought in the office of General Ramey, recognized that they were parts of radar reflectors. However, then his statement aroused distrust among journalists.

Many of the witnesses who saw the wreckage describe a sticky tape with a pattern of flowers or hieroglyphs on it. Moore confirmed that the reinforcing tape used on the CBM radar reflectors had curious markings. “Our reflectors had markings stylized as flowers. I have probably prepared more than a hundred of these reflectors for flying. And every time I prepared one of them for flight, I always wondered what is the point of marking with such adhesive tape? But Major John Peterson laughed and said: “What do you want if reflectors were made on

The radar reflectors contained small lugs, exactly the same as described in an article in "Kozmey Rau Esogd" dated July 9, 1947 by Brazel. Many UFO proponents have claimed that the wreckage displayed in General Ramey's office was a weather balloon that had been replaced by real

debris. However, Moore pointed out that the radar reflectors of the CBM balls were different from those used in New Mexico before, and that "they were not available at Fort Worth to replace the wreckage in General Ramay's office." Newton recognized radar reflectors in the wreckage because he maintained early versions of the same reflectors while serving in the military in Okinawa. The early versions that Newton worked with did not have the reinforcing tape with pinkish-purple flower patterns.

The fourth flight began on June 4, 1947, tracking the balloon to Arabela, New Mexico, just 17 miles from where Brazel later found the wreckage. The balloon was in flight when they lost contact with it due to failed electric batteries. Moore used archival weather data and New York University altitude information to model the balloon's likely path. Moore's analysis shows that after the fourth flight took off from Alamogordo, the balloon rose in a northeasterly direction (toward Arabela), then turned northwest as it passed through the stratosphere, and then began to fall to finally land. in a northeasterly direction. The end point of the calculated path is well aligned with the point in the Brazel Ranch area where the debris was found.

While ufologists are incredulous about Moore's arguments, citing the lack of information about the Movie project, Moore himself says that the project was so classified and divided into several independent (for uninitiated people) works that such links just don't

may exist. Any mention of these flights was referred to as the NYU Constant Altitude Balloon Study.

Some ufologists claim that the wreckage, and perhaps also the bodies of aliens, were secretly brought to Wrightfield for study. But Moore claims that these are fantasies, because. he, along with the entire team that launched the balloon, remained in Wrightfield on the evening of July 8, 1947, i.e. at the time this story happened.

In July 1994, the Office of the Secretary of the Air Force, in response to an inquiry from members of Congress about the "Roswell Incident" in July 1947, reported that the incident was related to the crash of a balloon being tested as part of Project Movie. The report also said that the rumors about the found bodies of aliens are based on incidents that actually took place, but happened to Air Force personnel at different times. The time in these rumors has become so dense that the events that took place in different years appear as if they happened within two or three days of July 1947. The official explanations were as follows:

“The alien bodies observed in the New Mexico desert were anthropomorphic mannequins that were tested on high-altitude air force balloons intended for scientific research. "Unusual" military activity in the New Mexico desert involved launches of high-altitude research balloons and payload evacuation operations. Reports of the arrival of military units immediately after the crash of the “flying saucer” in order to find the saucer and “crew” were accurate descriptions of the actions of Air Force personnel engaged in operations to search for and select anthropomorphic dummies. Reports of "alien bodies" at the Roswell Aviation Field Hospital were likely a combination of two separate incidents: a 1956 air accident involving a KC-97 aircraft,

in which 11 people died, and the failure in testing a manned balloon in 1959, in which two Air Force pilots were badly injured. This message is based on

official documents, confirmed by technical reports, film and photo materials, as well as interviews with direct participants in those events.

Bepe!x project

As part of the already mentioned Sorzheg project (military designation ÿÿ8-1191), the nature of air flows at extreme altitudes was studied, effective reconnaissance systems and equipment were created to control the ballast system of a balloon. A complex technique was developed for the return of reconnaissance cameras after the end of the balloon flight. All balloons were equipped with radio beacons, which had to be switched on by timers after crossing the borders of the airspace of the Soviet Union. The signals from the radio beacons determined the actual route of the balloon so that after the balloon left the airspace of the USSR, it would be intercepted by special rescue teams. Salvation of the payload was carried out as follows. The balloon gondola was equipped with a device that dropped the camera on a parachute, after which a C-119 aircraft picked it up with a special device. Analysts from KAMO advised the Air Force that the most efficient way to use No. 1191 would be to launch hundreds of balloons in batches of several over the course of several weeks. This would make it possible to expand the photographic area as much as possible when the balloons passed through Soviet airspace. The short time the use of balloons would not have given the Soviet

Patent No. 6050520 S. Kirla (2000)

the air defense system has time to prepare for actions against balls.

Balloon systems and crews for launching and rescuing them were prepared for deployment in the summer of 1955, shortly after the Soviets had turned down Western proposals to open airspace. Under the guise of the supposedly scientific project "Moby Dick" balloon launch site No. $-1191. were equipped in the Philippines, Japan and the state of Alaska. By the end of October, 2,500 balloons and their launch crews were brought to full readiness at five launch sites in Norway (Gardermoen), Scotland (Evanton), Germany (Oberpfaffenhofen and Giebelstadt) and Turkey (Intsirlik). A few days later, fifty C-119 rescue aircraft were deployed to Japan and Alaska. By the end of November, the balloon launch network surrounded the Soviet Union. The coded name of the project "CorNeg" was replaced by a new name -

Patent No. 6254032 F. Bucher (2001)

The balloon launchers were in a state of full readiness, awaiting President Eisenhower's order to begin the operation.

To cover up the operation, the following measures were taken. The CIA-sponsored National Committee for a Free Europe (which owned Radio Free Europe) flew hundreds of small balloons filled with propaganda leaflets over Eastern Europe in the summer. On January 9, 1956, at the request of the State Department, the Air Force began a series of meteorological balloon launches called Mie Stopd (White Cloud) to hide the true cause of the supposed reconnaissance balloon launches.

The device of the "White Clouds" was identical to the reconnaissance devices of the "Sepeih" with the exception of their nacelles, which contained only scientific equipment. At the same time, an official announcement was released to the press, which explained that such balloons would soon be launched with cameras to capture clouds. Only after final consultations with Secretary of State Dulles and assurances from Quarles that the potential benefits of the exploration project were worth the risk,

President Eisenhower gave permission for the operation to begin.

On January 10, the first batch of "Sepeigÿh" was launched - one balloon from West Germany and eight balloons from Turkey. The next day, nine more balloons were launched from the FRG, on January 12, eight more were added - one from Scotland and seven from the FRG. Over the next four days, ten more #8-1191s were launched from various bases. Since January 17, the launch rate has increased to 20 balls per day. Within two weeks after the start of the project, more than 200 Sepeigih balloons were sent towards the USSR. By January 13, three balloons, unharmed by the wave of the first day, left Soviet airspace. The nacelles with the equipment were successfully dropped by radio command and picked up in the air by C-119 rescue aircraft.

In the days that followed, approximately one Sepeitih ball from each launched series ended up in the evacuation zones. By the end of January, due to the absence of official protests from the USSR, the US Air Force decided to increase the launch rate to thirty devices, and then to forty devices a day. On February 3, the Sepeigih spacecraft, launched from Gardermoen, flew over Oslo. Over the next two hours, during which the glittering egg-shaped object drifted high in the sky, many eyewitnesses from the Norwegian capital and its suburbs reported the sighting of the UFO to the authorities.

However, despite the apparent silence, the Soviet Union undoubtedly knew that it was balloons, but it took time to develop effective tactics to stop intrusions of vehicles capable of flying at altitudes of about 22 km. In subsequent launches, the Americans, in order to increase the percentage of surviving vehicles, went to lower the flight altitude to 17 km. And at these heights, the devices were already within reach for the Soviet MiG-15 fighters. Soon US Air Force rescue teams

noted a significant decrease in the number of balloons that returned after reconnaissance missions, which indicated that the Soviet air defense forces had taken appropriate measures. And, finally, on February 4, Minister of Foreign Affairs A.A. Gromyko handed over an official note to the US Ambassador protesting the violation of Soviet airspace by balloons. In particular, it said: “The equipment installed on the balloons includes automatic cameras for azrophotography, radio transmitters, radio receivers and other things... Studies show that these balloons and the equipment installed on them were manufactured in the United States." In response, the US State Department officially stated that they were meteorological balloons, but on February 6, Eisenhower ordered the operation to be stopped.

In total, during the operation, they managed to launch 448 balloons instead of 2500 according to the plan, of which only 40 gondolas with equipment were picked up by rescue services. About 13,000 obtained photographs showed various regions of the Soviet Union and the deep regions of the PRC. According to some reports, “Sepe x” against the backdrop of photographed millions of square

kilometers of snow-covered forests, mountains, ice-covered lakes and rivers, discovered only one target of strategic importance - a complex for the production of nuclear weapons.

High-altitude heavy-duty balloons

The development of regimes simulating the flight segments of spacecraft in the atmosphere after deorbiting was carried out in the 1950s and 1960s with the help of high-altitude balloons. In 1997, the US Air Force revealed some details of previously classified high-lift research balloon projects. Among these works were experiments on lifting a payload weighing up to 7000 kg to a height of more than 50 km. Balls ta

Rush NGO

which class were used for full-scale aerodynamic testing of aircraft, and the diameter of the ball could reach 100 m. They were perceived by casual observers as UFOs in the form of silver discs, first hanging motionlessly in the sky, and then after the test aircraft is dropped to perform its autonomous flight). The Viking spacecraft was tested on one of these high-altitude balloons.

Disc airships

"SKkuÿÿÿÿr"

In an aircraft hangar in Cardington (England) on April 17, 1975, designer John West demonstrated a model of a disk airship with a diameter of 9 m. This model was a reduced copy of the ZKuzShr (Skyship) airship designed by West. It was assumed that the "8Kkuÿÿr" would have a diameter of 61 m, the payload was to be 6-10 tons. The airship could fly at a speed of 161 km/h for a range of up to 1600 km. This exotic shape was intended to minimize the effect of winds and to have a good load distribution over the area of the apparatus. Turbofan engines were used as a power plant. The author of the development believed that low operating costs would make the airship a suitable transport for use in third world countries.

"Obÿgoÿÿÿÿ"

Since the summer of 1989, Frank Sharman from Bledworth (England) has developed many projects of balloons and airships, known as "Misgo Aiÿÿÿÿÿÿ". The dimensions of the devices range from 0.6 m for balloons to 11 m for cigar-shaped airships. IN

Bachestav Kozemrev, Mikhail Kazemre:h

"Sÿgoÿÿÿ" in flight "Thermoplan" MAI

November 1994-March 1995 he developed the disk-like "Cigosia" 5A-39. The ÿÿÿÿÿÿÿÿ apparatus, made in several versions, is a hybrid of a gyroplane and a balloon.

Thermoplan

One of the first small-sized thermoplanes was developed at the Moscow Aviation Institute - it was called the aerostatic aircraft (ALA) "Thermoplan". Later, at the Aviastar enterprise in Ulyanovsk, work began on the creation of large-sized vehicles. In 1982, under the leadership of chief designer Yu. Ishkov, they began to develop

ALA-40 thermoplane, the prototype was completely ready in 1992. The device of a rigid design with a diameter of 40 m is designed to carry 5-6 tons of cargo. It has a gas heating control system in the shell.
Razra

haa

Thermoplan ALA-40

Vacheslev Kozyrev, Mikhail KOZY

An ALA-500 apparatus with a diameter of 200 m and a load capacity of 500-600 tons is being worked on.

The vehicles do not require any special ground equipment, are environmentally friendly, can be used to transport timber, oil equipment, as a flying hotel for tourists, rescue equipment in emergency situations, to fight fires, as a field hospital, etc. .d.

70. SCOUT PLANES AND UNMANNED VEHICLES

Aircraft 0-2

With the beginning of the Cold War, the US Central Intelligence Agency needed an aircraft to collect information about strategic facilities located on the territory of the USSR. At the end of 1952, requirements were formulated for a high-altitude reconnaissance aircraft that could fly much higher than Soviet interceptor aircraft of that time. Three firms initially participated in the competition: Fairchild (M-165), Bell (X-16), Martin (BB-570). Meanwhile, the CIA planned and financed a reconnaissance flight of the British Canberra aircraft from West Germany to Iran through the territory of the Soviet Union, flying over Kapustin Yar in July 1953.

In December of the same year, Lockheed joined the work on the high-altitude reconnaissance aircraft, which intended to modify its E-104 aircraft. This initiative project received the designation ST-282 at the company, the development was carried out under the guidance of chief designer K. Johnson. In May 1954, the ST-282 project was presented to the competition committee. The aircraft had a large span wing, a ski landing gear, it was supposed to use the TRD 157 as a power plant. To reduce the weight of the aircraft, the installation of an ejection seat was abandoned, the wing was designed according to the minimum allowable limit in terms of strength, the rear fuselage was fastened only with three bolts and etc. After considering the projects, Lockheed was declared the winner of the competition and received a contract on December 9 to build 20 aircraft under the designation 0-2. In the CIA, this project was designated by the code name "Aquaton", all work on it took place in the strictest secrecy.

Beachesltse Kozyrev, Mikhail Keozyrÿÿ

X-32 in the hangar X-32 in flight

The CIA instructed K. Johnson to select a site for a secret test site. In March 1955, Johnson sent the firm's test pilot, Tony Levier, and ZKipk Mogke plant controller, Dorsay Kammerer, to visit potential test sites in the deserts of Southern California, Nevada, and Arizona. Two weeks later, after reviewing the considerations presented by Levier and Kammerer, Johnson chose a place in the dry Groom Lake area for flight tests of the future aircraft, where work began on equipping the runway. By the end of 1955, the object was completed for flight tests 0-2. The Groom Lake facility has been known by many names since its inception. Johnson named the place Paradise Ranch. When his team arrived for flight testing in July 1955, they simply called the place "The Ranch." Formally secret.

the base was named Watertown. In June 1958, the Atomic Energy Commission (AEC) officially designated the site as "Area 51". The AEC outdoor demonstration site adjacent to it became known as the Nevada Test Site and split into similarly numbered areas. The name "Area 51" thanks to numerous mentions in Hollywood films is now known all over the world, although this designation was officially canceled in the 70s

years.

Area 51 is a large area of government land in the state of Nevada, located approximately

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150 km north of Las Vegas and 50 km south of Rachel. Located in the desert, it covers an area of 10 km from north to south and 16 km from east to west and is adjacent to the Nevada test site and Nellis Air Force Base. The existence of a secret base on which a previously unknown aircraft was tested became known on May 3, 1956, when representatives of MAZA somehow commented on a photograph of aircraft 0-2 that got into the press, describing it as “an aircraft of the meteorological service taking off from Watertown Airfield in Southern Nevada." In June 1958, all the lands around Watertown were officially withdrawn from public use. All adjacent areas were numbered, and the area where the Groom Lake base was located was numbered 51, from which the designation “Area 51” came from. With the start of work on the A-12 aircraft in 1959, the territory of the Groom Lake base was expanded in order to build a radar installation to study the visibility characteristics of the aircraft. In the mid-1970s, the 6513th test squadron of the US Air Force, which included combat Soviet aircraft, was stationed at the Groom Lake base. In 1975, the Red Flag test site was included in the neighboring Nellis Air Base, where combat operations against samples of Soviet military equipment were practiced: radars, anti-aircraft systems and fighters. In later times, top-secret aircraft were tested at the Groom Lake base - Have Blue, Tacit Blue, E-117, B-2, Project Aurora, etc. safety signs that warn that crossing the border of the zone is “deadly life-threatening”. Along the entire perimeter, electronic sensors are installed for tracking the movements of pedestrians and vehicles. Helicopters "Vaskakauk" without identification marks ply along the border of the perimeter, looking for violators and being in constant readiness to call for reinforcements in the form of motorized and military units.

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heavily armed patrols without any markings.

The Groom Lake base was greatly expanded in the 1980s. The main runway was extended south and then north to include the dry Groom Lake. At present, the total length of the main runway exceeds 8 km. A shorter parallel runway was built in the early 1990s. Shelters have been built along the main taxiway so that secret planes can be hidden from spy satellites. New radars, satellite telemetry and other means of communication were installed, a huge warehouse and assembly shop were built. The adjacent territory of the base was completely reconstructed and adapted for the work of service personnel numbering up to 2000 people.

Every weekday morning, at least 500 people congregate in the secure terminal area owned by Ea on the northwest side of McCarran Airport in Las Vegas. Here they board one of the Boeing 737-200s flying north every half hour. They are technicians and employees on their way to their final destination, Groom Lake Base, a place so secret that its existence has long been

was categorically denied by official representatives. Today Groom Lake Base is believed to be operated by the Air Force Flight Test Center Section 3 at Edwards Air Force Base.

Testing of the 0-2 aircraft at the Groom Lake base began even before the official commissioning of the first stage of the complex. The prototype aircraft, dubbed the Angel, made its first flight on August 1, 1955. Since the flights were planned and carried out in the strictest secrecy, the CIA began to receive reports from commercial pilots and air traffic controllers about UFO flights. Veil of secrecy and zkst

Routine measures to protect "Area 51", which actually consists of several test sites, soon attracted the attention of UFO enthusiasts and supporters of the version that US intelligence agencies were secretly studying alien technologies to this area. Until 1984, the base could be seen from Lysa Gora and other hills north of the dry lake. Then the US Air Force expanded the range of Nellis Air Force Base in order to exclude the possibility of observation from Lysa Gora and the nearby hills. However, inquisitive observers chose the slopes of the mountains to the south of the dried lake, the distance from these slopes to the base was about 19 km. But in 1995, these slopes were withdrawn from general use and included in the territory of the base. The most accessible observation point near Groom Lake is now Mount Tikabu, located about 40 km east of the base. The airspace above the base is closed even for pilots from the neighboring Nellis Air Base.

By the end of 1955, there were already four 17-2 aircraft constantly being tested at Groom Lake. The last three cars were not built at Lockheed's headquarters in Burbank, but at a small secret factory in Oildale disguised as a tire warehouse. In April 1955, two 7-2s were flown to Lakenhat Air Base in England. They were supposed to fly under the cover of the 1st weather reconnaissance squadron (MEZR-1), but their secret flights were supposed to take place over the territory of the Soviet Union. At the beginning of 1956, the first CIA pilots arrived for flights on 0-2 aircraft, who, according to the documents, were listed as Lockheed test pilots. Then both aircraft were transferred to Wiesbaden (FRG) and on June 19 they made training flights over the GDR and Poland. The CIA scheduled the first flight over the USSR for July 4, 1956, timed to coincide with the Independence Day of the United States. The flight was successful for the Americans, high-quality photographs of paradise were obtained

on Moscow, Leningrad and the Baltic States. Another 0-2 reconnaissance unit was soon deployed in Turkey. Early versions of the aircraft, designated MJ-2A, were designed to track nuclear tests in the USSR by traces of radioactive dust in the atmosphere. For these purposes, an air sampling device was installed under the aircraft fuselage. Successful flights for 0-2 ended on May 1, 1960, when the 0-2B aircraft piloted by pilot Powers was shot down near Sverdlovsk by a Soviet missile launched by the S-75 anti-aircraft missile system. Immediately after this incident, manned flights over the territory of the USSR were banned by the US government. Under these conditions, the CIA initiated the adoption of urgent measures to start the development of long-range unmanned reconnaissance aircraft.

58-71.

' The $K-71 strategic reconnaissance aircraft was developed by order of the CIA at Lockheed under the direction of C. Johnson. The first version of the aircraft, which first flew in April 1962, was called the A-11. Second version

E-22 in flight

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Yuukstvarchye NGO

It was designated A-12 and had less visibility on radar screens compared to the prototype. The version of the interceptor for the Air Force was developed in 1963 under the designation YG-12A. The existence of the new high-speed aircraft was first publicly announced by President Lyndon Johnson on February 29, 1964, when he stated that the A-11 had flown at speeds in excess of 3,000 km/h during testing at Edwards Air Force Base. The UR-12 was first publicly shown at Edwards Air Force Base on September 30, 1964. The development of the ZE-71 from the A-11 project as a strategic reconnaissance aircraft began in February 1963 | The first flight of the ZK-71 "VasKYga" ("Blackbird") took place on December 22, 1964. The 56-71 strategic reconnaissance aircraft was a delta-wing aircraft, in the consoles of which two ÿ-58 turbojet engines with a thrust of 14,742 kg were installed . The power structure of the aircraft is almost entirely made of titanium alloys; Aerodynamic control surfaces consist of all-moving vertical surfaces above each engine nacelle, ailerons on detachable parts of the wing and flaps on the trailing edge of the wing between the jet nozzles. Although most publications characterize the 3E-71 as a low visibility aircraft, in fact it was one of the largest targets ever seen on the screens of long-range tracking stations of the US Federal Aviation Administration. This target could be detected at a distance of several hundred miles due to the large torches formed by the jet streams of the aircraft's engines. The 5E-71A crew consists of two people (pilot and system operator) sitting in tandem in the cockpit. During the performance of high-speed tasks at high altitude, both crew members are dressed in high-altitude compen- sation

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suits that are similar to the space suits of the first American astronauts. In 1995, the US Congress allocated 100 million dollars for a program to modernize the strategic reconnaissance aircraft - two ZE-TTA aircraft and one experimental 5V-71V simulator aircraft. The program was managed by Air Command from Wright Patterson Air Force Base. These actions of the supporters of the resuscitation of the strategic intelligence program caused a wave of criticism in the United States. Opponents of the program noted that the aircraft could operate effectively only in good weather, and besides, it could not transmit the collected intelligence information directly to the command.

Characteristics of 5E-71A: wingspan - 16.94 m, aircraft length - 32.73 m, height - 5.63 m, maximum takeoff weight - 52,250 kg, maximum speed - 3200 km/h, range - 3200 km (without refueling), service ceiling — 26,000 m.

"Turbolet" (Air Force Museum in Monino)

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Handmade MO

Number of aircraft built and lost:

Modification Built | | Lost E |

A-12 13 | 5 |

ohm - E 20 8 |

and Pi

5E-LA 29 p |

E SK-71V | 2 | E EN

| Wu _ | with GE EEE 0 | | r-21

The idea of developing an unmanned aerial vehicle (UAV) based on the experience of creating a supersonic A-12 aircraft arose at Lockhill in October 1962. It was assumed that the UAV would be launched in the air from a carrier aircraft, which was supposed to be the A-12 . A ramjet engine was chosen as the power plant. Studies carried out using the experimental aircraft X-7A-1, X-7A-2 and X-7A-3 showed that the Kÿ43-MA-11 ramjet from the Marquardt company is most suitable for UAVs, initially developed for the Boeing VOMAX cruise missile. However, the engine had to be modified: the flame stabilization system was redesigned, a restart system was installed in case of flame failure, a new jet nozzle was designed, a cooling system was added, etc. This made it possible to increase its operation time to 1.5 hours, the modified engine received the designation ÿÿÿ4ÿ-ÿÿ2058-4.

The device called O-12 was conceived as a disposable UAV in order to minimize its weight and cost. However, to save the photographic equipment and the expensive navigation system, the design of the vehicle included a drop container equipped with a parachute. The full-scale mock-up of the spacecraft was ready by December 7, 1962, and the conducted radar tests showed that the spacecraft had low detectability.

The tests carried out in the wind tunnel also confirmed the design parameters of the vehicle. However, the CIA was less enthusiastic about the 0-12 work, mainly because with the cessation of 0-2 flights, it urgently needed an A-12 aircraft for covert operations in Southeast Asia. On the contrary, the Air Force became interested in the device, which could use it as a reconnaissance or cruise missile. A decision was soon made to jointly fund the Air Force and the CIA for an unmanned vehicle. On March 20, 1963, Lockheed received an official letter from the CIA about the conclusion of a contract for the creation of a reconnaissance apparatus. The original name of the apparatus 0-12 was changed to R-21.

One of the main problems in the development of the R-21 was the problem of its undocking in flight from the A-12 carrier aircraft, because. The UAV was supposed to be located on the back of the carrier in the cramped space between its keels. The project was completed in October 1963, the device received a new designation - O-21A, the carrier was designated as M-21 ("P" means "Ratso er - daughter", and "M" - "MoSheg - mother"). The project of the O-21A / M-21 linkage now had the code name "Tazboag4". The design of the device was mainly made of titanium and steel alloys, some elements were made of composite materials that absorb radar radiation. The container with reconnaissance equipment and the guidance system was located in the so-called “O-compartment”, 1.9 m long. Inside the container were the main units of on-board radio-electronic equipment, which included an inertial navigation system (05), an automatic control system flight (AEC5) and air parameters computer (APC). To ensure normal operating conditions, the container is provided with a cooling system for BRZO and payload. Before the flight, the initial setting for the Mach number was introduced into the ARS, which

maintained at a given level during autonomous flight [-21A. According to the initial concept of the project, after uncoupling from the carrier, the vehicle should fly independently according to the program embedded in its navigation system P\$, which prompted the route, flight profile, vehicle roll angles, and the moments of turning the camera on and off. The R-21A was supposed to end the flight at a given pick-up point over the ocean, where the pyrobolts that released the container were blown up. Freed from the container, the apparatus then fell until it was destroyed by a self-liquidator charge at the signal of a barometric sensor. The container fell to a height of approximately 4500 m, after which the parachute with a floating buoy opened. Further, the container continued to descend, hanging under a parachute on a rope several tens of meters long. The so-called “cat’s whiskers” were located along the entire length of the cable with a certain step for reliable engagement with the MAK5 system, which was equipped with the JC-130V rescue aircraft. In case the aircraft overshot and the container fell into the water, it was envisaged that the container tied to the floating buoy would be lifted out of the water by a rescue vessel. This technique was previously developed by the Air Force to rescue photographic materials from spy satellites.

The M-21 was a two-seat version of the A-12, with a pylon on the axis of the fuselage between the keels, on which the UAV was attached. The pylon had two locks for fastening the apparatus (mechanical and pneumatic with ejector), emergency firing of the apparatus was not provided. In addition, the pylon had a device for supplying fuel to the R-21A. The fuel was supplied by two lines: one was intended for circulation, the second was for refueling the vehicle's fuel tanks. The circulation line was intended for cooling the apparatus, since its skin on the segment of the joint flight with the carrier aircraft was heated to over 300°C. In the rear cockpit of the carrier aircraft, where the control operator was located, there was

periscope through which the operator watched the device. Two M-21 carriers (Mob0-6940 and No. 60-6941) and seven O-21A vehicles were prepared for flight tests. The first flight of the M-21 with the O-21A apparatus took place on December 22, 1964 at the training ground in Groom Lake. The O-21A remained on the back of the carrier during the entire flight, as the aerodynamics of the entire hitch and the performance of various systems were studied. The air intake and jet nozzle of the apparatus were covered with fairings. One of the sections of the route was passed at supersonic speed.

The first launch of the device was carried out on March 5, 1966. Before undocking, the A-12 climbed over 18,000 m and reached a speed of M = 3, because. the UAV engine could only be started after reaching these flight parameters. After the ramjet was launched, the operator monitored the readings of the sensor installed in the pylon. This sensor signaled the value of the thrust of the ramjet, after reaching the required value of thrust, the operator gave the command to undock. During undocking, the vehicle hovered over the tail of the M-21 and was in this position for several seconds, which seemed to the control operator, in his words, “two hours”. After that, the device flew over 200 km and was lost. It was not bad at all for the first flight of such a machine, but the CIA and Air Force were still not enthusiastic about the progress of the program. The second successful launch took place on April 27, 1966. In this flight, the O-21A reached an altitude of 27,400 m and a speed of M = 3.3, although due to a hydraulic pump failure in the control system, the device was lost after it flew more than 2200 km. This was regarded as a very satisfactory progress, which returned the interest of customers to the program, and by the end of the month a contract for an additional 15 copies of Yu-21A was issued. The third successful flight took place on June 16, 1966, and the O-21A fully completed the flight program. He flew 2575 km, made eight

programmed turns while remaining within the surveillance area of the floating telemetry station. But the container with the photographic equipment and the navigation system was not dropped due to the failure of the electronics.

However, an attempt made on July 30 to launch the O-21A ended in an accident: the device collided with the M-21 during undocking, damaging the carrier. During undocking, the aircraft veered sharply to the left, and it hit the A-12's back with its wing, while the aircraft lifted its nose up from the impact. At a speed of M=3.2, the air flow broke off the nose part, together with the cabins, from the rest of the aircraft fuselage. Both crew members still managed to eject and splash down in the Pacific Ocean. The crew commander remained alive and was picked up by the rescue team, and the control operator, having received damage to the high-altitude suit during the ejection, drowned without having time to use the individual life raft.

All fears regarding the launch of the O-21A from the back of the A-12 aircraft were justified, and this scheme had to be abandoned. The developers proposed to launch the O-21A from the B-52 bomber. To accelerate the apparatus to the speed at which its ramjet starts to operate, it was supposed to use a solid-fuel booster. Adapting the O-21A to take off from the B-52 was not a trivial task. It was necessary to modify the apparatus by moving the attachment points from the lower part of the fuselage to the upper part and making it possible to install a solid propellant booster on it. The modified apparatus received the designation O-21V. The accelerator was a solid-propellant rocket 13.5 long and weighing 6025 kg, which exceeded the corresponding parameters of the device itself. The nose fairing of the booster was equipped with a supersonic turbine driven by an incoming air flow to ensure the operation of the electrical system and hydraulic drive during the launch and bringing the vehicle to a given mode. The accelerator had a lower

a small tail stabilizer that provided stable straight flight. The thrust of the accelerator was 12,380 kg, the operating time was one and a half minutes.

A new program was adopted under the name "Senior Bom", within the framework of which two V-52Hs were finalized for launching R-21V vehicles. They added two very large underwing pylons to carry unmanned aerial vehicles, replacing the smaller pylons used for Nospa Rov cruise missiles. Two 35 mm high-speed film cameras were installed in the right and left front niches of the landing gear to record the process of launching vehicles from pylons. In addition to them, a large-format film camera was installed in each pylon to record the moment of undocking of the spacecraft. Two independent stations for UAV operators were added in the tail section of the bomber's flight deck, along with telemetry and control systems, and an astronavigation system to improve the accuracy of the device's pointing. In addition, a UAV thermal control system was added to stabilize their thermal state before launch. The B-52N aircraft during the mission carried two vehicles on pylons - on the left and on the right. However, only the right vehicle was always launched, the vehicle on the left pylon was a spare. After the separation of the right vehicle from the pylon, the accelerator was turned on, which accelerated the UAV to a speed of M = 3 and an altitude of more than 22,000 m. After 90 seconds of operation, the accelerator was separated from the vehicle using pyrobolts, and given program.

The first launch of the R-21V from the V-52H carrier was undertaken on September 28, 1967, but during the uncoupling, the vehicle accidentally hit the pylon, after which it flew towards the ground and was lost. Three more launches were made from November 1967 to January 1968. Neither was completely successful, so the system was fully tested to determine the cause of the failures. next launch

was April 10, 1968 and was also unsuccessful due to the failure of the engine. After modifications, on June 16, 1968, the r-21V performed a test flight at the indicated altitude and a given course along the full range, the drop of the container in which the camera was not installed was successful. Launch troubles, however, are not over yet. The next two tests were unsuccessful, again due to the failure of the engine to start. Good quality photographs were obtained during the successful December flight. A launch in the Hawaiian Islands in February 1969 to simulate an actual mission flight was unsuccessful due to the failure of the autopilot, but the next two flights in May and July were completed successfully. R-21V with B-52N carriers were put into service in the 4200th test squadron for reconnaissance flights over the territory of China. The planned areas for dropping containers after completing the task were the air bases — Anderson (Guam), Kadena (Okinawa) and Hikam (Hawaii). The first combat mission was completed on November 9, 1969, when the R-21B was sent to observe Lop Nor (mountainous region of China), where, according to the CIA, one of the nuclear industry enterprises was located. The device did not arrive at the designated area to drop the container, as the Americans suggested, due to a failure in the navigation system software. The second combat flight of the device took place on February 20, 1970 with the new software and was successful. However, there were no further combat missions until December 16, 1970, when 0-21B completed a full flight to Lop Nor and back, reaching the container drop area. The drop of the container was normal, but its parachute did not open, as a result of which the container was lost. The fourth mission flight on 4 March 1971 was even more disappointing. The vehicle has completed the prescribed route again.

to Lop Nor and back, dropped the container, which began to descend safely on the opened parachute. But when trying to pick up the descending container by plane, a malfunction occurred in the MAE $ rescue system, the container fell into the water. The rescue vessel intended for this occasion could not pick it up, and the container sank. The fifth and last flight of the r-21V took place on March 20, 1971. It was lost in China on the return mission, the Americans assumed that the device was shot down by an air defense system. In July, the R-21B program was terminated. Although the program suffered from many errors and defects, the main reasons for the termination of the program were the restoration of relations between the US and China and the commissioning of the new US spy satellite KH-11. The cost of one launch of the O-21V apparatus, which included the cost of the apparatus itself, the cost of the accelerator, software, operating costs for preparation for launch, etc., amounted (at 1970 prices) to 5.5 million dollars.

A total of 38 R-21s were built, of which 21 were used up. The remaining 17 vehicles were mothballed and left for storage at the Davis-Montana Air Force Base near Tucson, Arizona. The existence of 0-21 was only revealed by chance. In early 1977, aviation enthusiasts unexpectedly discovered 17 UAVs unknown to them at the Military Aircraft Storage Center at Davis-Montana Air Force Base, which is not forbidden to visit. The exotic apparatus was photographed, and then the first press report about the R-21 appeared. Misinformation statements immediately followed from representatives of the Air Force, in which the vehicles were presented as experimental machines used in the development of the A-12/5K-71 aircraft. However, this only fueled interest and became the reason for studying the history of the creation of the device and its operation.

Soon, four of the UAVs put into conservation were transferred to MAZA, and the rest to the US aviation museums. At the end of the 1990s, MAZA considered the possibility of using its O-21s to test the KVSS hybrid engine, which operates as a ramjet or rocket engine, depending on flight conditions. However, in the end, MAZA abandoned the use of the O-21, and preferred to use the experimental X-43A apparatus of its own design for these purposes. In the Seattle Aviation Museum, one of the main exhibits is the A-12 aircraft with the R-21 UAV mounted on its back.

When B. Rich, C. Johnson's successor as chief designer at Lockheed, visited Russia in the 1990s, he was shown UFO wreckage found in Siberia in the late 1960s. B. Rich recognized in these wreckage the P-21V, which disappeared over China in the first mission flight. Due to a malfunction in the navigation system program, instead of turning to the opposite course, the device continued to fly in a straight line. He crashed in Siberia. Found fragments of the device were transferred to the Design Bureau. Tupolev for study.

Characteristics of the O-21A "YuOgope" ("Drone"): wingspan - 5.8 m, length of the apparatus - 13.0 m, payload weight - 5000 kg, maximum speed - 4300 km / h, range - 5500 km, practical ceiling - 29,000 m.

AOM-34

UAVs as a weapon system began to be used in the United States as early as the 1950s; they were mainly used as air targets. For the first time, a large number of UAVs were used during the Vietnam War. Beginning in 1964, 11 devices for various purposes were developed by order of the Ministry of Defense, although due to problems with development and financing, only 3 devices reached mass production. Navy

Vyacheslpov Kozyrev, Mikhail Kozyrev

The United States was exploring the possibility of using the OH-50 Sugodure, an anti-submarine vertical take-off UAV that could carry 1-2 torpedoes. However, the high cost and technological imperfection of the development made it impossible to purchase and operate this system. The heavy losses of American aviation in Vietnam forced the urgent modification of the Teledyne-Ryan VOM-34A (0-2-C) aerial target into the AOM-34A long-range reconnaissance aircraft. If the predecessor made a flight, receiving commands from a ground operator, then the modified device was able to perform an autonomous flight according to a given program. A total of 28 versions of the apparatus for various purposes were developed: a reconnaissance vehicle for collecting various information, a jammer and countering radio reconnaissance, a decoy for probing an enemy air defense system, etc. UAVs were in service with the 350th Strategic Intelligence Squadron of the US Air Force.

One of the variants of AOM-34G. was an air-based vehicle, it was launched and controlled from an OS-130 aircraft. Intended for photographing at low altitude objects in North Vietnam. After completing the task, the device had to go to a safe zone, where it ended the flight, descending by parachute. The device was either picked up in flight by a special helicopter, or descended to land or water, where it was picked up by a special search group. During the Vietnam War, more than a thousand AOM-341 devices made 3435 flights. These flights were carried out with technical support from Teledyne-Ryan specialists.

The AOM-34M aircraft had a wing span increased three times compared to the prototype, in which additional fuel tanks were placed. Measures were taken to reduce the visibility of the vehicle and increase its maneuverability to reduce vulnerability to interceptors and surface-to-air missiles.

spirit". Between March 1967 and July 1971, 138 AOM-34M flights were made. The launches were carried out from the S-130 aircraft, after which the vehicles flew according to a given program over the territory of North Vietnam and China. Losses of vehicles of this modification amounted to 35%, and some devices were lost in the airspace of China.

ASM-91

In the late 1960s, Teledyne-Ryan developed the ACM-91 Compass Argo (Model 154) high-altitude apparatus, which had a low degree of visibility. The UAV could fly at an altitude of 23,780 m and had a range of 3,220 km. The vehicle took off and landed on a conventional runway, and the vehicle was controlled in flight using an onboard Doppler inertial system and an onboard computer. A total of twenty-eight devices were built, they were used for conducting aerial reconnaissance over the territory of China.

Mind

In the early 1970s, a competition was announced for the development of a reconnaissance UAV that would have a greater range than the Sotras atom. He had to take off and land on a regular runway and have the ability to stay in the air for a long time, performing a combat mission. The transmission of reconnaissance data was carried out to the ground control station using radio relay stations. Two companies participated in the competition - Teledyne-Ryan and Boeing.

Teledyne-Ryan designed and built two prototypes of the UOM-96A (model 235). The device was a modification of the Sotras Atom UAV with a reduced sweep wing. One of

experimental vehicles in 1974 set a world record for the duration of an unmanned flight - 28 hours and 11 minutes (without refueling).

The Boeing Company built two prototypes of the UAV YOM-94A. The first apparatus made its first flight in June 1973, but was destroyed during an accident.

rii a month later. The second apparatus took off for the first time 2 but:

November 1974. During the tests, he performed a successful flight for a duration of 17 hours 24 minutes at an altitude of more than 16,000 m. to the US Air Force Museum in September 1979.

AOM-105

After the decrease in interest in UAVs on the part of the Air Force, the US Army and Navy began to show more activity in this direction. One of the UAV projects funded by the army was the project of the AOM-105 “Aasha” device, launched in 1979. The total cost of the work was originally planned at $563 million - $123 million for development and $440 million for purchase 780 devices and auxiliary equipment.

According to the terms of reference for the development, "Aashia" was supposed to be a small propeller-driven vehicle carried in preparation for takeoff by four soldiers. The device was intended to provide the commanders of the ground forces with operational information

formation from the battlefield in relation to the actions of enemy forces located outside the field of view of ground observers. However, during the development of the vehicle, it became obvious that the requirement for a small size of the vehicle was in conflict with the need to equip it with numerous avionics and various payload options.

"Aasha" was supposed to fly, controlled by an autopilot,

carrying sensors to detect and identify targets day and night, and using a laser to locate targets for Sorretead (Medanka) artillery shells. It was believed that the device would provide artillery control and survive in the conditions of the action of enemy air defense systems. Noise immunity and secrecy of communication lines had to be provided, but the use of secure communication worsened the quality of the transmitted video information, which was contrary to the planned goal. During trial operation in 1987, the Adiya successfully completed the requirements of flight missions only in 7 out of 105 flights. In 1987, the army abandoned the project, because. its value by that time had exceeded $1 billion, and the estimate showed that an additional $1.1 billion would be required to purchase a batch of devices reduced to 376 pieces.

"Pioneer"

The development of the Pioneer apparatus, which was intended as a reconnaissance vehicle for adjusting the fire of naval artillery, was started in the United States in 1985. Initially, it was assumed that the vehicles would be based on the Iowa class attack ships, then GRR. Structurally, the device is made according to a two-beam scheme with spaced keels and has a straight wing with lower struts. The pusher engine is located at the rear of the short fuselage. The device has a tricycle wheeled chassis for aircraft takeoffs and landings. However, if necessary, the vehicle can be launched from a fixed or mobile launcher, in which case the vehicle takes off with the help of launch rocket boosters suspended under the rear fuselage. In total, in 1986, the US Navy purchased nine systems, each equipped with eight Pioneer vehicles, for $87.7 million.

"Pioneer" began to face unforeseen

problems almost immediately. Returning to the home ship after performing a combat operation became a serious problem due to interference from other ship systems, this caused numerous accidents. The Pioneer system also suffered from numerous shortcomings. Ultimately, the Navy was forced to conduct additional studies at a cost of $50 million to bring all nine systems to an acceptable level of reliability. Initially deployed in December 1986 aboard the Navy battleship Iowa, the Pioneer is currently in service with some Naval fire support ship formations on the East and West coasts of the United States, in two units of the Marine Corps , as well as in test and training divisions. Successful deployments have been made by the Navy aboard ships of the line, the Marine Corps aboard amphibious assault ships, and the army on the ground.

The Pioneer flew nearly 14,000 flight hours in its first ten years of service and supported every major US operation. Its first combat use took place in 1991 during the first Iraqi war. US Army, Navy and Marine Corps commanders positively

appraised the device for its effectiveness in reconnaissance, ship gunfire support, and command and control of ground formations on the battlefield. During Operation Desert Storm, Pioneer vehicles, which were in service with six divisions, carried out more than 300 combat reconnaissance missions with a total flight time of 1,083 hours, the number of damaged vehicles was 18, and 12 vehicles were lost. Starting from September 1994 Pioneer participated in operations in Bosnia, Haiti and Somalia. By the end of 1999, Pioneer aircraft had more than 20,000 flight hours on their account.

UTOG project,

IN-FOR

UAV VO-ZA "Rak 5Zar" ("Dark Star"), developed for the Air Intelligence Unit of the US Department of Defense (RACO), is one of two promising devices with a high degree of autonomy. The Ratk 5gag is designed to provide operational all-weather and continuous monitoring of the situation in the combat area; as a result of using the device, the command will be supplied with timely information, which will allow them to immediately take the necessary actions, including those related to the use of precision weapons. The Parc Wat system is capable of operating in areas with a high intensity of countermeasures from the enemy's air defenses. "Park U(bug" has a significantly smaller size than the UAV "Slobzha! Na\K" ("Global hawk"), its aerodynamic layout is close to the "flying wing" scheme, there are no vertical aerodynamic surfaces. - we use the techniques of the "SeaSh" technique and have low unmasking features of the UAV, according to the developers,

will be able to penetrate and function in areas protected by powerful modern air defenses. In order to increase the efficiency of intelligence gathering, Rat Szag can be used in conjunction with the OLoba! On\K". Moreover, both devices will be capable of automatic take-off, flight to combat areas and return to base, as well as capable of dynamic reprogramming of missions in flight. The reconnaissance system will be able to function at a distance of 900 km from the launch site. The average time for collecting information is 8 hours. The vehicles will be equipped with electro-optical reconnaissance equipment and synthetic aperture radars. Promising electron-optical sensors and reconnaissance on-board equipment were developed by divisions of the Northrop and Grumman companies. The Ratk Z(ar) reconnaissance electro-optical system is similar to that of the "Sioba! Na\K", but with a smaller bandwidth. Unlike C1ob! Na\K, which is capable of carrying both types of equipment simultaneously. The development of the Cancer 5GAR drone systems was carried out by personnel from Lockheed and Boeing. Each of the companies is responsible for 50 percent of the development. Boeing is responsible for the development of the wing, wing systems and testing Lockheed is responsible for the development of the center section, its subsystems, final assembly and testing of the system The turbofan engine was developed by U ats Piegpanopay The first planned The flight of the Patk Syaar drone took place in March 1996. During the second flight, which took place in April of the same year, the ParK Szar crashed. aerodynamic laws of flight control. December 22

Man-made in MO

In 1996, the Deputy Secretary of Defense approved an amended plan for the Cancer Bar program. The corrected program plan was the result of a revision of the entire program after the accident of the experimental unmanned aerial vehicle "Patk Siag". The program was reviewed by an independent panel of leading experts from government, industry and academia.

Drones OKB im. S.A. Lavochkin

In the Soviet Union at the end of 1950, OKB im. SA. Lavochkin began work on the La-17 airborne unmanned target, intended for training fighter-interceptor pilots and crews of anti-aircraft missile systems of the air defense system. The vehicle had a rectangular wing and tail, and an RD-900 ramjet engine installed under the fuselage was used as a power plant. The air target was controlled in flight using an autopilot and radio command equipment. The vehicle was launched from a Tu-4 carrier aircraft at an altitude of 8000–8500 m. given route. During state tests of the La-17, the following results were obtained: steady flight speed - from 575 km / h to 905 km / h, flight altitude - from 2800 m to 9750 m, maximum engine operation time - 8.5 minutes. The device was mass-produced. So, for example, at plant number 21

Mesbaty unmanned aerial vehicle in flight

in the city of Gorky for the period from 1956 to 1958, about 250 copies were produced.

In 1959, the production of a modified La-17M aircraft with an RD-UBF turbojet engine began. The spacecraft was launched from a ground-based launcher using PRD-98 solid-fuel boosters. The practical flight ceiling of the La-17M was increased to 16,000 m, the engine operating time was up to 39 minutes. There was another modification of the target under the designation La-17MM with the RD-9BKR engine, tests of which at the end of 1963 showed the following characteristics of the device: flight altitude range - from 580 m to 18,100 m, maximum speed - 875 km / h, flight duration - up to 97 minutes.

On the basis of the La-17M, unmanned reconnaissance aircraft La-17R and La-17RM were created, equipped with photo or television equipment, as well as radiation reconnaissance equipment. The flight range of the La-17R was 200 km, the maximum speed reached 885 km/h. Since the reconnaissance vehicle was developed as a reusable vehicle, a parachute rescue system was provided for the vehicle after the end of the flight. La-17R entered service in the early 60s
x years.

Drones OKB im. A.N. Tupolev

A Soviet UAV of the same class as the R-21 was developed at the OKB im. A.N. Tupolev in 1964. The device, which had the designation Tu-123 "Hawk", was intended for single use. It was launched from a ground launcher with the help of starting solid-fuel boosters, cruising flight was provided by a power plant, which was used as a KR-15 turbojet engine. Entered into service in 1965, the strategic reconnaissance aircraft Tu-123 "Hawk" could reach speeds of up to 2700 km / h, had a practical ceiling of 22,800 m and a range of 3200 km. After the end of the flight, the device dropped a container in a given area with only

breathing equipment, which descended on a parachute. A more advanced reusable apparatus Tu-139 "Yastreb-2" was also developed. However, due to changes in the requirements for reconnaissance vehicles, he did not go into the series, and the "Hawk" was withdrawn from service in the mid-70s.

Since August 1968 in the Design Bureau. A.N. Tupolev, the development of reusable UAVs began - the operational tactical Tu-141 Strizh and the tactical Tu-143 Reis. The Tu-143 was the first to take off, this happened on December 1, 1970. The device was equipped with a TRZ-117 turbojet engine, it could carry photographic and television equipment, as well as radiation monitoring equipment, as a payload. The Tu-141 took off from a mobile launcher with the help of boosters. The device could carry out reconnaissance within a radius of up to 190 km with a maximum speed of 950 km/h. Serial production of the Tu-143 was launched in 1973, and three years later they entered service. Systems equipped with Tu-143 vehicles were exported to Czechoslovakia, Romania and Syria. Syria successfully used them during the armed conflict in Lebanon in 1982. The total number of devices produced was 950 copies, production was discontinued in 1989.

The Tu-141 took off for the first time in 1974. It was equipped with a KR-17A turbojet engine and could carry photographic, television and thermal imaging equipment, which made it possible, when flying at an altitude of 500 m at a speed of 1000 km/h, to detect objects smaller than .5 m. During the years of serial production (1979-1991), 152 devices were produced.

In 1999, mass production of the Tu-243 Reis-D UAV began, which is several times more efficient than the Tu-143. On the basis of the Tu-243, the M-243 unmanned target was created, the Tu-241 operational-tactical reconnaissance aircraft and the multi-purpose Tu-300 Korshun, capable of performing strike missions, were developed.

Vacheslae Kozyrev, Mikhosil Kozyrev

ps-01

In the Soviet Union, in the late 1970s, the operational-tactical UAV PS-01 Komar was developed. The device, created at OSKBES MAI, had an annular empennage with a pusher propeller and rudders placed inside the ring. An MP-6Kh2 piston engine with a power of 12 hp was used as a power plant. The apparatus had a mass of 90 kg, a flight range of 100 km, and a maximum speed of 180 km/h. The first flight of the PS-01 took place in 1980; the vehicle was launched in the air from a launch device towed by a helicopter. In total, three copies of the device were built. In addition to Komar, OSKBES MAI developed and built several copies of the Elf-D UAV, designed for biological and chemical treatment of crops in agriculture.

Drones OKB im. A.S. Yakovlev

In 1983, the Pchela UAV developed by OKB im. A.S. Yakovlev. The device, equipped with a 20 hp piston engine, was intended for reconnaissance, electronic warfare and relaying. A total of 50 vehicles were built, "Bee" became the prototype for the Yak-61 "Bumblebee-1" UAV, the development of which began in 1985. "Bumblebee-1" is designed for 10 applications, takes off using two solid propellant ny accelerators from guides installed on the car chassis. Landing of the device is carried out using a parachute on a four-wheel non-retractable landing gear. The device is stored and transported folded in a fiberglass container.

Flight tests of the device, equipped with television and infrared equipment, began in 1989, and three years later Shmel-1 took off in the version of an aerial target. cruising

machine speed is

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Man-made NGOs

140 km / h, flight altitude range - from 100 m to 3000 m, flight duration - up to 2 hours. In addition to military applications, Shmel-1 can be used in the national economy: patrolling oil and gas pipelines, detecting forest fires, conducting environmental monitoring, agriculture, meteorology, geology, etc.

Drones by A. Lippisch

After the war, A. Lippisch worked for the firm "SoPips Kafo Sotrapu". Here he was engaged in the creation of remotely controlled unmanned aerial vehicles. Unlike the "tailless" ones he created during the war, post-war drones did not have wings. A. Lippisch experimented with models of various configurations and with various types of motors, including electric motors. One of his last projects, the Aerodyne drone, was built in 1967 at the Dornier company, A. Lippisch worked there as a consultant.

ABOO

Small vertical takeoff and landing UAVs of the AKOR series have been developed for the US Marine Corps. These remote-controlled devices are designed to observe and transmit images to the ground control. The AKOR project was started in the Hawaiian branch of 55C (San Diego) in the early 1980s and continued in the late 1980s as part of the TOU (Theoregaid Mesce) program to create promising telerobots - aerial reconnaissance.

The first generation of AKOR spacecraft was represented by a "flying saucer" called "Agobor" by Moller. Four fans were located in the body of the apparatus, the fans had an electric drive. Power was supplied to the device through a cable

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Vacheslov Kazejrev, Mikhoilt Kozyrev

from a ground station that could be carried by one person. The second generation vehicles, developed by Sandia, were much larger and were equipped with a 26 hp two-stroke gasoline engine that drove the main rotor. Externally, the apparatus was a “flying kettle”, over which a main rotor was installed. The control rudders were located at the bottom of the apparatus, the automatic control system ensured the stabilization of the apparatus in space. Communication with the ground control panel was maintained using a fiber-optic cable with a duplication of a radio communication channel. The reel with the cable was located on board the apparatus; the cable length was 5 km, which ensured the flight along a closed route with a radius of 2 km or a one-way flight over a distance of 5 km.

The control panel had a handle with three degrees of freedom. Two onboard cameras transmitted the image to the ground operator on the display of the control panel. Although the device performed well in flight tests, the AKOR program was terminated due to financial difficulties.

ÿÿ -227/ÿ1-289

SG-227 “Sepÿÿÿÿ” (“Sentry”) is in service with NATO troops, in particular, it is regularly used in military exercises in the UK. The device was developed by the bomber systems department of the Kanader company, an early version under the designation Reapsh (Ara-

his") began to be produced back in 1978. The C1-227 is a remote-controlled helicopter with a gas turbine engine that rotates a pair of counter-rotating coaxial propellers. The marine version of the submersible was prepared for testing in 1992. The submersible has a height of just over 1.8 m, four legs are used as a chassis. The device weighs 190
kg and may not

45 kg payload for 3 hours at a speed of 147 km/h.

The ST-289 was developed in 1993. It is a programmable unmanned aerial vehicle carrying a reconnaissance camera and an infrared surveillance system that can transmit data in real time to a ground station. The device is launched from a mobile launcher using rocket boosters, after the end of the flight, the device descends by parachute. This version was developed for the armies of France and Germany. The device weighs 295 kg, payload weight is 30 kg, speed is 736 km/h, range is 200 km.

"Surjeg"

The firm "Sikorsky" in the late 80s developed a vertical take-off and landing apparatus "Surzheg" ("Symbol"). The first prototype of the Surneg apparatus had a diameter of 1.75 m, its height was 0.55 m, and weighed 20 kg. A 3.8 hp four-stroke engine was used as a power plant, the first flight of the device took place in the summer of 1988. The next modification of the device weighed 110 kilograms, had a diameter of 1.9 m, and the U !APKe! 53 hp The first flight tests on a leash took place in February 1993, then the device was tested in free flight. The maximum flight duration of the vehicle was about 3 hours at a speed of 80 km/h. Flight tests and demonstration flights continued throughout the 1990s, the result of the tests was the appearance of the project of the Surpeg P apparatus.

Two prototypes of the "Sureg P" were built for the US Navy, they received the name "Rtavop Maggiog" ("Dragon Warrior"). Surge P has the same dimensions as its predecessor, but has an additional pusher screw and can be adapted to the configuration

radios with wings for long-term reconnaissance flights. In the winged configuration, the Surjeg P has a range of more than 185 km and a maximum speed of 230 km/h.

"ao!depeue" 100

The company "Aygoga Eiegyo Sciepse" has developed the UAV "Soiyepeue" 100 ("Golden Eye"). The device takes off vertically with the help of a screw located in the annular channel in the body. After lifting into the air, the device turns 90 ° to go into level flight. The device is designed for autonomous flight, but it can also be controlled from the ground. Characteristics: height (in vertical position) - 1.7 m, take-off weight - 68 kg, speed - 300 km / h, range - 800 km.

"(oP! uÿe"

YuNue is a hypersonic UAV developed by Assigaye AshotaNop Corporation under contract with MAZA and the US Air Force. The device, whose length is 7 m, made its first flight in 1995.

"Model 379"

The UAV called Model 379 was developed by Northrop-Grumman and Ryan. The device belongs to the class of "black helicopters" ("Nakk Pasor (erz"), so called because they do not carry any identification marks on their sides. This type of unmanned aerial vehicles was intensively developed in the USA and was tested on secret air bases.According to some reports, the device will be put into operation between 2000 and 2025. The first samples of the "Model 379" are already in service with the US Navy.

Characteristics of the Model 379: maximum takeoff weight - 1157 kg, empty weight - 661 kg, fuel weight - 360 kg, payload weight - 91 kg, main rotor diameter - 8.38 m, tail rotor diameter - 0.65 m.

77. PLANES SOARING FROM THE TAIL

Airplanes taking off from the tail

HEM-1

In early 1947, the Navy and the US Air Force began programs to explore the possibilities of creating vertical take-off and landing aircraft (VTOL), and in 1950 the Navy opened a competition for the development of a fighter that took off from the tail, the prototype of which was chosen by the German aircraft of the times of the war Not “I erge” P. The firms “Konvzr” and “Lockheed” were chosen to participate in the competition. The UT40-A-14 engine with a power of 5850 hp was to be used as a power plant, which drove two counter-rotating coaxial propellers. Lockheed developed the aircraft under the designation XRU-1 “Za top” (“Salmon”) (Zaipop — after the name of the lead test pilot Herman Salmon). The tail, made in the form of the letter "X", also performed an additional function of the landing gear during takeoff and landing, at the end of each surface there was a small turning wheel. The pilot's seat in the cockpit was mounted on a hinge, allowing it to rotate 45°. The armament of the aircraft was to consist of four 20 mm cannons or 46 rockets of caliber 70

mm.

For the initial flight tests, the HEU-1 was equipped with a temporary auxiliary landing gear of a conventional type. It performed its first level flight in March 1954. The total number of conventional takeoff and landing flights was 27, after which an attempt was made to switch from level flight to vertical flight at an altitude of about 300 m. control of the aircraft in hover mode forced to stop further testing. Soon all work on the aircraft was stopped.

Characteristics: wingspan - 8.33 m, aircraft length - 11.42 m, empty weight - 5261 kg, maximum

Vecheslpov Kozyrev, Mikhail Kozyrev

Takeoff HEU-1

take-off weight — 7358 kg, propeller diameter — 4.9 m, maximum speed — 933 km/h.

XYY-1

The Conver company developed the XYY-1 Roro aircraft, which was more compact than its competitor. During the tests, the aircraft performed 280 tethered takeoffs, on August 1, 1954, the first free flight took place. The first flight with the transition from vertical to horizontal position and back was performed on November 2 of the same year. Flight tests of the aircraft continued until November 1956, but the program was soon terminated.

Characteristics: wingspan - 8.43 m, aircraft length - 10.66 m, maximum takeoff weight - 7371 kg, maximum speed - 982 km/h.

X-13

The Ryan firm began research in the field of VTOL aircraft in 1947. In 1953, the firm received a contract from the US Air Force for the development of the X-13 Veerchii fighter with the Auop KA.29MK turbojet engine. thrust 4534 kg. Takeoff and landing

aircraft were to be operated from a platform mounted on a trailer. For this purpose, there was a mounting hook in the forward fuselage of the aircraft. The first horizontal flight was made on December 10, 1955, the machine was equipped with a temporary landing gear for this. On April 11, 1957, the second experimental machine took off vertically from the trailer, switched to level flight and made a vertical landing on the trailer. The aircraft was controlled during takeoff and landing with

jet deflection aid. Despite

that the plane was demonstrated in flight on July 28-29 of the same year in Washington near the Pentagon, the X-13 program did not receive further development. A total of two prototypes were built, both of which were kept after the termination of the program.

Characteristics: wingspan - 6.4 m, aircraft length - 7.14 m, maximum takeoff weight - 3317 kg, maximum speed - 777 km/h, range - 310 km.

S.450-01

In 1952, the French company Snekma began to develop the C.450-01 Soeorguete fighter with the Aa 101E.U. thrust 3700 kg. A feature of the aircraft was the use of an annular wing. The first flight took place in May 1959, the aircraft was controlled during takeoff using deflectors that deflected the jet stream of the engine. In July of the same year, the plane crashed

sya. Despite the fact that the results obtained at the initial stage of the tests were encouraging, the program was discontinued.

Characteristics: wing diameter - 3.2 m, aircraft length - 8.02 m, maximum takeoff weight - 3000 kg.

1=. Tiltrotors

After the end of the war, the Transcendental Aviation Company was founded in the USA, which was engaged in research in the field of creating aircraft with rotary propellers (tiltiplanes). In 1951, Transcendental built an experimental tiltrotor under the designation 1C, which has an O-290-A engine with an HP 160 power. through long shafts, it drove two three-bladed rotary propellers at the wingtips. This small aircraft made more than 100 test flights with a total duration of about 20 hours, but on July 20

In 1955, due to a breakdown in the mechanism for transmitting rotation to the screws, he crashed. A more powerful engine was installed on the second experimental machine; it was tested in 1956-1957. Soon, work on the 1C apparatus was stopped.

XU-3

In 1951, the Bell company began developing an apparatus under the designation XU-3. The apparatus was structurally similar to apparatus 16, but had a more powerful engine. The first vertical flight took place in August 1955, but two months later the prototype crashed. The second, modified, aircraft took off for the first time on December 12, 1958. In 1965, the aircraft crashed; in total, it performed 250 flights, including 110 with the transition from vertical to horizontal flight and vice versa.

XU-15

Twenty years after the start of work on the XU-3, Bell began construction of a new aircraft of the same class under the designation XU-15. The first full flight was performed on the second experimental machine on July 24, 1979.
To

In 1986, the XU-15 tiltrotor had 530 flight hours and reached a maximum horizontal speed of 640 km/h, but the program was soon terminated.

Kh-100/ Kh-19

An aircraft of the same type under the designation X-100 was developed by Curtiss-Wright. The YT53-1-1 engine, installed in the fuselage, rotated two propellers on the wingtips by means of a synchronizing shaft, the propeller axes could be rotated by 90°. The first vertical flight took place in September 1959, the only flight under the full program took place in April 1960. A year and a half later, the program was terminated. However, the experience gained was used in the development of the next X-19, which had two engines in the fuselage, which rotated four propellers on the tips of the front and rear wings. The first flight of the machine took place on November 20, 1963, two years later the program was terminated, by this time the machine had made 50 flights.

U-22

The Bell company, together with the Boeing company, began in 1983 the development of a tiltrotor under the designation U-22. Two rotary engines ÿ406-ÿÿ-400, which rotated three-bladed propellers, were located at the wingtips. The first hovering flight was performed on March 19, 1989, and the first horizontal flight took place six months later. The aircraft was intended to carry 24 people, or a payload of 21,000 kg. The range was 960 km, the maximum speed was 640 km/h. By the end of 1996, the flight time of five prototypes was more than 1100 hours. Of these five cars, two crashed in 1991 and 1992, with seven people killed in the latter crash. The first of

four pre-production aircraft began flying on 5 February:

1997 Air Force, Navy and Marine Corps aircraft ordered total 523.

500 "Sadej"

In 1966, the French company Nord developed an apparatus under the designation 500 "Saye" equipped with two T63-A-5A engines with a power of 317 hp each, which drove two five-bladed propellers. In total, two prototypes were built. The first machine was used for static strength tests, and the second machine was intended for flight tests. The Sade made its first tethered flight on July 23, 1968, but the program was soon cancelled. Characteristics: wingspan - 6.1 m, aircraft length - 6.7 m, weight - 1252 kg.

"Model 65"

In 1954, the Bell company built an apparatus under the designation “model 65” to study the possibility of using rotary turbojets. Two J-44 turbojets with a thrust of 450 kg each, installed on the sides of the fuselage under the wing . The engines could turn from horizontal to vertical. To control the aircraft at low speeds, a jet control system was used, the nozzles of which were located in the tail and in the wingtips. The machine performed its first flight on November 16, 1954, horizontal flights were performed in 1955. However, due to insufficient engine thrust, the transition from vertical to horizontal flight and back was difficult. Soon, work on the "model 65" was discontinued.

Uÿ 1016

An aircraft of the same type, under the designation UJ 101C, was built by the West German consortium EME. This is a supersonic aircraft with six KV.145 turbojet engines with a thrust of 1250 kg each. Two engines were located vertically in the fuselage behind the cockpit, the other four were placed in pairs in two rotary nacelles according to the law

winglets. The first experimental machine made its first vertical takeoff on April 10, 1963; the full flight took place on September 20 of the same year. In July of the following year, the machine broke the sound barrier, performing a planned flight in a gentle dive mode, but in September it was damaged in an accident. The second prototype took off vertically for the first time on May 3, 1964, and was subsequently lost.

XC-142

In February 1957, the American firm Hiller began the development of an experimental tiltrotor with two T40-A-14 engines mounted on the wing consoles. During takeoff and landing, the wing rotated around its longitudinal axis at an angle of up to 90°. The first flight of the experimental aircraft took place on November 24, 1959; during further tests, the aircraft was destroyed.

Based on the experience gained, the Hiller company, together with the Ryan company, began the development in the early 60s of a tiltrotor under the designation XC-142 with four T64-SE-1 engines. It was designed to carry up to 3500 kg of cargo or paratrooper units. A total of five machines were built, the first prototype flew in full on January 11, 1965. The total flight time of the XC-142 was about 420 hours, but four machines were destroyed during testing.

C1-84

The development of the Canadian C1-84 tiltrotor began in November 1963 at the Kanadzr company. Two T53-ITSIK-4A engines, which drove four-bladed propellers, were

installed under the cantilevers of the rotary wing. The first vertical flight took place in May 1965. A total of four prototypes were built, three of which flew. During flight tests, two cars were lost.

13. FLYING PLATFORMS and jeeps

In the 1950s and 1960s, the development of one of the most exotic types of vehicles began - "flying platforms" and related "flying jeeps". The initial purpose of the “flying platform” was to carry out reconnaissance missions, they were calculated for the flight of one person. The larger “flying jeep” seemed to be potentially useful for many different tasks.

flying platforms

A “flying platform” began to be called a vertically taking off apparatus with coaxial propellers located in an annular channel. The development of single-seat "flying platforms" for combat use began in the United States as part of a NASA research program in the early 1950s. The tests included manned tethered platforms first lifted into the air with compressed air and later with rotors. The concept used in the development was proposed at one time by NASA engineer C. Zimmerman, who is already known to the reader by his M-173 and XE50-1 “flying pancake” aircraft. His proposal was as follows. If the rotor, for example, is placed at the bottom of the vehicle's base, then the pilot would be able to control the vehicle by moving its own weight, the so-called. "kinesthetic" control. This control is based on the instinctive reaction of a person to maintain balance when he is standing or walking. In the “flying platform”, the pilot leans in the desired direction to turn the machine into the desired position. It was assumed that such control would allow the pilot to fly on such a platform after a small three

adjustments. Preliminary tests demonstrated the technical feasibility of the concept, after which three companies - Lackner, Bensen and Hiller - received contracts to develop a prototype platform.

In the mid-1950s, Luckner developed an aircraft called the OH-4 "Neppyesug", later renamed the H2-1 "Agosuse", which looked like a hybrid of a helicopter with an outboard engine and a motorcycle. . This apparatus was a design with a 40 hp Megsigu engine installed on it. and a landing device consisting of air bags at the ends of the spars. The air bags were later replaced by metal props. The engine drove a pair of 4.6 m counter-rotating rotors mounted under the engine, while the pilot stood upright on a platform above the engine, protected from falling into the rotor by seat belts.

The Necuesyug/Aegosus{e} first flew in January 1955, the flights were successful, after which the US Army ordered 12 vehicles. According to representatives of the Lackner company, that the machine could fly at speeds up to 105 km/h and carry a payload weighing 55 kg in addition to the pilot, the flight duration was about one hour. However, one thing reminded me that flying was dangerous. Not only did the pilot stand above the spinning rotors, but the rotors were structurally close to the ground, making landings and takeoffs dangerous, as rocks and various debris could easily hit them.

Some sources claimed that the NeNues-{org/Agosue was easy to fly, but others stated, citing test pilots, that novices could not fly the craft in complete safety. After two flight accidents occurred in which the counter-rotating rotors

U7-1

Tests U2, -1 ia leash

U2-8R (V)

Y2-1E

Flying jeep longitudinal scheme

Vacheyspov Kozyrev, Mikhoip Kozyrev

twisted and collided, the project was terminated before anyone was seriously hurt.

The Bensen apparatus, under the designation B-10 Rtorsorcer, was no more successful. This humble little machine consisted of a square frame with 1.2 m diameter propellers mounted vertically in front and behind the frame. Each was powered by its own 72 hp McCulloch engine. The Rtorsorgeg flew in 1959 and was obviously difficult to fly. The project was soon terminated.

Hiller's designs were better thought out and attracted a lot of attention. Hiller developed its first "flying platform" 2-1 "Raupee" on the basis of a contract awarded in late 1953 by the Naval Research Directorate (OMK). The car first took off in February 1955.

\U7-1 had a pair of counter-rotating rotors with a diameter of 1.5 m, located inside the annular channel. Each rotor was driven by its own 40 hp two-stroke engine. The pilot stood over the ring canal, surrounded by railings and protected by seat belts. He controlled the engines with the throttle and leaned over to steer the craft in one direction or the other. The annular channel improved safety during takeoff and landing. In addition, it also provided an additional 40% increase in lift. The craft handled well in flight, but it was soon modified with longer landing gear to increase ground clearance and eight rudders below the channel to improve flight control. The U.S. Army was interested in the U2-1, and in November 1956 Hiller was awarded a contract to build a larger version, which made its first flight in 1958. The new unit had three 40-liter engines. .s., rotating rotors in an annular channel with a diameter of 2.4 m. This more than doubled

Man-made UFOs

Project of the flying Project of the flying platform of the jeep-attack aircraft of the firm "Hiller"

rotor area, increasing the payload weight and flight range while reducing the noise from the engines.

The Army has ordered a third larger unit. Instead of a wheeled chassis, like the two earlier models, a ski chassis was installed. The apparatus had a seat and a conventional helicopter control, as the center of gravity control became less effective due to the increase in vehicle power and weight. This version first flew in 1959. The U7-1 had its merits, but it was ultimately judged to be too small, slow, and only fit for limited use. The army abandoned the program in 1963, and two of the three devices survived only in museum expositions.

At the same time that research on "flying platforms" was being carried out, large aircraft such as the "flying jeep" were being developed under contracts with the US Army. This was the name of aircraft of a twin-screw longitudinal scheme or a four-screw one. Initially, "flying jeeps" were conceived as a universal vehicle that

was supposed to take a place between the army all-terrain vehicle "Jeep" and a light helicopter. It could be used for transport or reconnaissance operations, as a mobile platform for firing from recoilless guns, launching missiles, for adjusting artillery fire, installing electronic equipment, etc. Research began in 1956, then a competition was announced in which about 20 firms took part. The winners were Chrysler, Curtiss-Wright, and Piasecki, who were awarded contracts totaling $1.7 billion to build prototypes.

Chrysler developed two prototypes of its U2-6 "flying jeep" and delivered them to the army in late 1958. The U2-6 was a single-seat box-shaped vehicle with two rotors front and rear. There were rubber conical fairings around the base of the apparatus, rudders were installed below the rotors. A single 500 hp piston engine was used as the M2-6 power plant. Tethered flights made in 1959 showed that the M2-6 was not very well controlled and had insufficient power. The first free flight of the M2-6 led to the overturning of the apparatus. The pilot survived, but the vehicle was badly damaged. The Army recognized the U7-6 as an unsuccessful development, both prototypes were scrapped in 1960.

Developed by Curtiss-Wright, the U7-7 was also known as the "flying truck". Two prototypes were delivered to the army in mid-1958. The U2-7 was a simple metal truss with a pilot in front and four propellers at the corners. All propellers were controlled by a single Apouche engine with a power of 425 hp. The device was controlled by a differentiated change in the pitch of the propellers, as well as rudders. M2-7 was 5.2 m long and 4.9 m wide and had a maximum takeoff weight of 770 kg, an

the parat could carry 250 kg of payload. The U4-7 controlled well and was easy to fly, but it did not meet the requirements for altitude and flight speed. Soon the tests were completed, and the prototypes were returned to the company in the middle of 1960.

Piasecki's efforts to create a "flying jeep" were the most successful of the three competing firms. Her first device was “Mode! 59N Attaeer, which was given the army designation U / -8R. U/4-8R was 7.9 m long and 2.7 m wide, three-bladed rotors were located in front and behind, with a pilot and a passenger between them. In the U7-8R, rotors with a diameter of 2.4 m were controlled by a pair of Gusopshtr piston engines with a power of 180 hp, and one engine could drive both rotors if the other engine failed. The rotors rotated in opposite directions. Control was provided by changing the pitch of the propeller, as well as by rudders mounted from below. Forward movement was achieved by lowering the nose of the vehicle down.

The first flight of the U7-8R took place on October 12, 1958. Based on the results of the test flight, it was decided to install a more powerful power plant. The device was returned to the company to replace the piston engines with one Apouche gas turbine engine with a capacity of 425

HP, upgraded M2-8R flew at the end of June 1959. It weighed 1.1 tons and could carry a load of 550 kilograms, including the pilot.

U7-3R also participated in the competition for the development of a "flying genie" for the Navy, which began in June 1961. It was equipped with an even more powerful engine, the "Airsearch" 331-6, in addition, the device was equipped with floats. The new version of the device received the designation RA-59 "SeaCeer".

Under the new contract, the Piasecki firm built another apparatus under the designation “Mode! 59K" (army designation U7-8R (B) "AigSeer P"), which

which made its first flight in the summer of 1962. The U7-8R (V) was similar to its predecessor, except that the design had a slight break in the middle. It was believed that a slight inclination of the nose and tail rotors would reduce drag in level flight. As a power plant for the U7-8R (V), two engines "Apoche" PS with a power of 400 hp each were used, connected so that if one engine failed, the other could control both rotors. One engine could also be connected to a wheeled chassis to drive the machine while moving on the ground. The increased power of the power plant made it possible to achieve a maximum takeoff weight of 2200 kg. The pilot and observer had ejection seats, which allowed the crew to escape almost at zero speed of the vehicle. In addition, the device had a place to accommodate additional passengers or cargo. The experience of operating "flying platforms" and "flying jeeps" in the 1950s and 1960s showed that they had some advantages, in particular, they were smaller in size than helicopters and could work more successfully on the ground. However, helicopters could land easily in mountainous areas and had more comfortable seating arrangements. The biggest drawback was that the “flying platforms” and “flying jeeps” had small rotor areas, because this was the reason for their instability in some modes, and relatively high fuel consumption. And since they did not show sufficient advantages over helicopters, their further development was also suspended. However, at the end of the 1990s, interest in devices of this type reappeared. The American company "MÿSheppÿsht Jÿÿ" (Sunnyvale, California) has developed a project of an unusual apparatus called "ZooTek" HEU. It is a hybrid of a "flying platform" and a tiltrotor. The pilot is standing in the apparatus,

Above its head there are two screws with a diameter of 0.9 m in the annular channels, the device is controlled by two handles in the armrests. The right stick is for directional control, and the left stick is for controlling the speed of the engines. The pilot, in addition to conventional flight instruments, has a display built into the helmet goggles. When moving horizontally (forward or backward), the propellers synchronously deviate from the vertical axis; when the device rotates around the vertical axis, the propellers deviate differentially.

"ZooTgek" has a total weight of 318 kg, cruising speed - 95 km / h, maximum speed - 130 km / h, fuel capacity - 38 l, range - 240 km. The ceiling is expected to be 2440 m, although in practice the device will fly at low altitudes. The prototype "ZooTgek" had a "Ni ÿ" E30 engine with a power of 120 hp. This engine is often used in ultralight aircraft. It can spin propellers at speeds up to 5000 rpm, although it is assumed that the device will take off at 3500 rpm. The propellers are made of 'carbon fiber nylon' composite material and can withstand bird strikes. In mass production, SoioTgek will probably be equipped with a 125 hp MUG8-125 engine. A parachute is included in the set of the SOIIOTREK apparatus, which opens automatically upon a signal.

accelerometer if the device starts to fire. At the end of October 2000, an experimental apparatus was tested at the center. Ames (California). Its designer, Michael Moshier, a former US Navy pilot, believes that “the time has come for aircraft like the Sojotron.”

The Israeli company Lego Pechep & Reyortepi (Ap&P) has been working on a "flying platform" called "Niti a" ("Hummingbird"), which is similar to the apparatus of the firm "Hiller". The device "Niti-Yga" is built using modern technologies, for example, to reduce weight in the design of the

composite materials are used. The power plant of the apparatus consists of four reciprocating engines. The weight of the apparatus is about 115 kg, the maximum flight duration is 45 minutes at a speed of 45 km/h.

The MSheppit Jei firm is developing yet another vehicle called the OioTrek, which is a hybrid of a helicopter and a tiltrotor. RioTgek is 4.8 m long, fully loaded weighs 660 kg, can carry 160 kg of payload for a range of 550 km. Versions of the apparatus with two and four propellers are being developed, designed for a crew of one and two people. The Office of Advanced Research of the US Department of Defense became interested in this development.

Another American company, RAM (Virginia), has been working on a "flying platform" since 1989 and has built a launcher (Tipaiuia! [te Mese]). The P.U apparatus resembles an interesting mixture of various early "flying platform" designs. It is a simple tubular structure with a diameter of approximately 3 m on supports, equipped with two Ni E-30 engines with a power of 195 hp, each of which rotates a propeller with a diameter of 2.8 m. It is operated by a pilot who stands on top of the platform and uses the control method by shifting the center of gravity. The PAM 1008 has an empty weight of approximately 300 kg, can carry a payload of up to 200 kg, a maximum speed of 100 km/h, and a range of 40 km. The company intends to use the device, in particular, for the protection of herds of cattle or for the pollination of agricultural crops.

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